amateur radio

Vol. 35, No. 7
JULY
1967

25c

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16	450	55c	250	12	45c
16	500	65c	250	15	50c
24	350	50c	250	25	60c
24	500	65c	250	50	85c
25	25	30c	500	6	45c
25	50	35c	500	12	65c
30	6	25c	500	15	65c
30	12	25c	500	25	70c
32	350	65c	500	50	$1.15
32	500	95c	1000	15	85c
50	6	30c	1000	25	$1.20
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"AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

JULY 1967
Vol. 35, No. 7

Publishers:
VICTORIAN DIVISION W.I.A.
Reg. Office: 478 Victoria Parade, East Melbourne, Vic., 3002.

Printers:
"RICHMOND CHRONICLE," Phone 42-2419. Shakespeare Street, Richmond, Vic., 3121.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,
"AMATEUR RADIO,"
P.O. BOX 36,
EAST MELBOURNE, VIC., 3002.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non-members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence; in addition, "A.R." should also be notified. A convenient form is provided in the "Call Book".

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Direct subscription rate is $3.00 a year, post paid, in advance. Issued monthly on first of the month. February edition excepted.

John Battrick, VK3OR

FEDERAL COMMENT

☆

ON HOMEWORK

This evening, perhaps, while your children are doing their homework—before you chase those long-path Europeans on 20 metres, or chat to a couple of your friends on 2 metres, or finish wiring-up that project, or whatever you planned—may we suggest some homework for you?

In this issue appears the first of a series of Executive Communications designed to acquaint Australian Amateurs with certain important matters affecting the future of Amateur Radio. Please read George VK3VX's article on the I.T.U., then to do some homework!

Take a piece of paper, a pen; rule your paper down the page into three columns. Head the first column "for us", the second one "agin us", and the third "don't know". Look at the list of Member Countries of I.T.U., and place each in one of the columns, then add them up. What is your answer?

On what basis can one place countries in those three categories? Yes, it's a bit hard, even for h.f. operators; v.h.f. operators do this exercise, too—although you are not much concerned at operation outside Australia, the maintenance of your spectrum allocations within Australia depends on just the same thing: VOTES AT I.T.U. CONFERENCES CAST BY AMATEUR-ORIENTED COUNTRIES.

How does one tell if a country is "Amateur-oriented"? Some guideline: Is the Amateur prefix often heard? Is the operator of that station an indigenous person (not an ex-patriate American, Briton, etc., or a DX-peditioner)? Does his country have an active Amateur Society? Has his Society such a standing that he is a member of it? Is his Society on good terms with his country's administration?

Affirmative answers probably indicate that the country MAY be "Amateur-oriented", and it MAY cast its vote in favour of its Amateurs and their frequencies. My homework indicates that in the last resort **we will need 66 countries who do!** Unless there are no further I.T.U. Conferences. Then what?

—JOHN B. BATTRICK, VK3OR, Federal Secretary.

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Frequency response	300-15K	200-12K	200-12K	200-12K	50-12K	50-12K	20-20 K
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Please add Packing and Post, 10c set.

NOTE: A Circuit is available for making a 1,000 watt Light Dimmer using K5B20, K2C, Pulse Transformer and a few resistors and condensers. Write or call for a copy.

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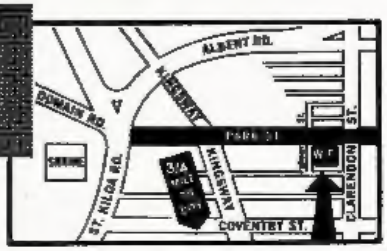

OPEN SAT. MORNING

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Please include postage or freight with all orders

CONVERSION OF CRYSTAL CALIBRATOR No. 10

• There are a number of these crystal calibrators on the market at a very low price, which make excellent wave meters. However, unmodified it is necessary to supply the unit's filaments with 12 volts d.c., which is difficult to obtain without lugging a car battery into the shack. Readers are given a choice of two methods of conversion for the filaments of the unit.

THE unit consists of a 500 Kc. crystal controlled oscillator, providing output in multiples of 500 Kc.; a v.f.o. with a tuning range of 250 Kc. and a mixer in which the signals are combined and the output taken.

Output is useable to 30 Mc. at 2 Kc. calibrated intervals.

The calibrator requires an external power pack of 12v. d.c. for the filaments and 250-300v. d.c. h.t. (More output is obtained when the h.t. supply is 300 volts.)

Valves used are 1T4 (crystal oscillator), 1R5 (mixer), 1T4 (v.f.o.) and a CV286 neon which discharges at one second intervals to identify the unmodulated carrier output.

Modifications to Permit D.C. Operation on 3v. in lieu of 12v.

ALAN R. HERALD,* VK3AJP

The simple modification described enables the filaments to be operated on 3 volts d.c. at 150 mA.

Remove the four screws at the extreme corners of the front of the unit and remove from the box. Lay on the bench face downwards with the dial glass nearest to you. A thick wire choke will be noticed attached to the left side of the switch. Connect approximately 2½" of wire from the solder lug at the left end of the choke to the solder lug on the top edge of the chassis to the left of the neon tube (CV286). (There is a r.f. choke connected from this solder lug to pin 7 of the neighbouring CV785 tube.)

Next lay the unit upright on its top edge. Behind the switch, between the two panels, in the right hand corner will be found a red 22 ohm resistor connected from the rheostat to an earth lug. Cut the resistor from the earth lug and leave the cut end clear of the chassis. It may be possible to completely remove the resistor from the rheostat, but it is difficult to get any tools into the small space. The unit will now operate on 3 volts d.c. filament supply and 250-300 volts d.c. h.t.

Connections on the input pins on the front panel are now as follows. The left hand "thicker" pin, 3 volts positive; centre pin, h.t. 250-300 volts d.c.; while the right hand "thin" pin is the common negative.

* 12 Elm Street, Surrey Hills, E.10, Vic.

No doubt the connecting cable provided will be used to connect the battery and h.t. Do not be fooled by the colours of the wires in this cable; they are most unconventional.

As the power consumption at 3 volts is only 150 mA., a cycle lamp battery should be sufficient to supply the unit for a long time with the intermittent use a wave meter gets.

If the dial does not zero beat the crystal frequency at the high frequency end (left end), adjust the trimmer adjacent to the tuning condenser.

A full description of the technical details of the unit will be found in "A.R.," December 1960.

Rewired for A.C. Valves

I. W. O'TOOLE,† VK2ZIO

As the author is not equipped to operate battery tubes, conversion to a.c. became a necessity and operation of the filaments from 12v. a.c. was tried, but proved to be unsatisfactory owing to a high hum and low output level. (The latter being apparently normal.)

As this step proved unsuitable, the unit was rewired for a.c. valves. Of the valves on hand, the first selection proved suitable. They were: 6AM6 (xtal osc.), 6AM6 (v.f.o.) and 6BE6 (mixer). The neon (CV286) remained unchanged.

Although the change to a.c. valves requires the complete rewiring of the sockets, no component values have to be changed, or additional ones added. The filaments now become 6v. operated, though 12v. operation is possible by placing a dropping resistor in series with one of the valve filaments, or replacing this with a pilot light of suitable current rating, installed above the dial plate.

When the power was applied a very considerable increase in output was evident, the results being well worth the time taken.

Expected operating voltages should be:—

Crystal Oscillator, 6AM6:
Plate 60v., Screen 60v.
V.f.o., 6AM6:
Plate 40v., Screen 15v.
Mixer, 6BE6:
Plate 30v., Screen 25v.

These voltages may appear to be rather low, the input h.t. being 230v., though any increase in h.t. applied to the tubes would result in increased temperature drift after switch on, which would be when it was required for measurement.

Effective h.t. on the plates and screens could be increased by altering the value of the feeder resistors, which are quite high, giving increased output if one was not concerned with drift.

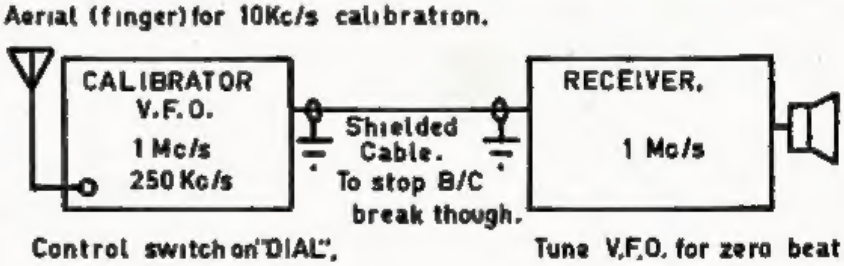
VALVE BASE NUMBERS

Pin	1T4	6AM6	1R5	6BE6
1	F—	G1	F—	G1
2	P	K	P	K, G5
3	G2	H	G2, G4	H
4	NC	H	G1	H
5	F—	P	G5,F—	P
6	G1	G3, Is	G3	G2, G4
7	F+	G2	F+	G3

At this stage, the v.f.o. calibration accuracy was checked and found to be quite erroneous, brought about by the changed valve capacitance and component positions plus the fact that the adjustments had not been adequately "anchored" when the unit was last calibrated.

Calibration appeared to be rather a headache and after much thought a foolproof method was evolved, whereby the v.f.o. could be calibrated against the crystal oscillator, using a receiver tuned to 1 Mc.

With the control knob turned to 500 Kc., the receiver is tuned to 1 Mc., a b.f.o. being used to zero beat the incoming signal. With the control knob on "dial" the v.f.o. is tuned to 1 Mc. (calibrated scale) and the Phillips trim-



CALIBRATING THE V.F.O.

The cathodes of the three a.c. valves were earthed, the crystal oscillator and mixer valves directly, and that of the v.f.o. through the v.f.o. coil (Z1/ZA 34863), the connection being made to the lug nearest to pin 7. All other wires were reconnected to the appropriate elements.

Rewiring may appear to be tedious work, but it did not exceed 45 minutes in the author's case, and he also managed to fit all of the components back in!

† 78 Garden Grove Parade, Adamstown Heights, Newcastle, N.S.W.

mer on C26 (v.f.o. gang) is adjusted until the v.f.o. zero beats with the xtal oscillator output at 1 Mc.

The v.f.o. is then tuned to 250 Kc., the harmonic from this being used to zero beat with the crystal output on 1 Mc., the v.f.o. frequency being adjusted by the slug at the top of the v.f.o. coil (Z1/ZA34863).

These two operations are repeated until calibration at both ends of the dial is correct. When this has been achieved, the unit can be placed in use.

The addition of a shielded output socket and lead to the receiver (which is a necessity during normal operation) and the retaining of the original screw down aerial terminal, allows calibration of the 10 Kc. points.

Armed with a pencil and paper and the same test set-up as before (this time at night), tune the b.c. receiver and the calibrator v.f.o. to 750 Kc.

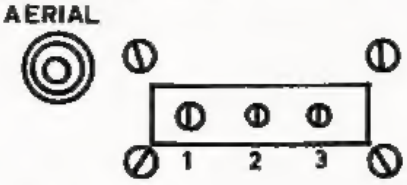
By placing one's finger on the original calibrator aerial terminal the broadcast station on that frequency (4QS Toowoomba) may be heard without any hetrodyning whistle, when the calibrator is tuned correctly to 750 Kc. This procedure is then used every 10 Kc. until the v.f.o. is tuned to 1 Mc. While this is being done, a list of errors is prepared, and studied in preparation for frequency correction.

This error can then be reduced by moving the outer plate of the tuning capacitor. Gaps have been cut from the plate to allow this to be carried out, over specific portions of the range.

The author's v.f.o. appears to have a maximum error of +300 c.p.s., which is quite acceptable as errors are not multiplied, as the unit operates on an additive basis.

Other valves could be used in place of the ones listed, particularly in the case of the 6AM6, 6BA6s or 6AU6s should operate in this place satisfactorily.

If the existing power socket, plug and cable are to be used, one should note that the wire colours in the cable are not connected with the conventional colour code in view.



POWER INPUT PLUG.

		Old	New
Pin 1	F+	12v. d.c.	6v. a.c.
Pin 2	HT+	250v.	250v.
Pin 3	Earth	—	—

OPERATION

The calibrator is not to be confused with a signal generator, the latter being designed to produce output on only one frequency (plus harmonics). The calibrator produces output at every 500 Kc. and when the v.f.o. is on, at four additional points per megacycle.

This means that the calibrator will produce 180 calibration points between 0-30 Mc. at any one time. Hence any receiver being used in conjunction with the calibrator must have reasonable calibration if quick readings are desired.

To find any given frequency turn on the receiver b.f.o., tune to obtain zero beat with the v.f.o. signal. When measuring the frequency of a received signal, hetrodyne the v.f.o. against the signal, refer to the receiver dial, then read the v.f.o. dial.

If the unit is in continual use, a plug in the case may be screwed out to offset temperature drift.

Once the calibration had been corrected, drift has not been noticed. The unit has been in a car travelling over gravel roads of the worst order and the calibration has remained correct..

The author has tried numerous circuits and methods to obtain accurate frequency readings, this unit being so far the best, and a delight to operate, even WWV is now on frequency!!

CALIBRATION CHART

10 Kc. Correction

Frequency Kc.	Deviation C/s. +	—
750	0	
760	200	
770	300	
to	etc.	
1000	etc.	

10th JAMBOREE-ON-THE-AIR

This year's Jamboree-on-the-Air has been scheduled for the period 0001 hours G.M.T. on Saturday, 5th August, to 2359 hours G.M.T., Sunday, 6th August.

This coincides with the holding of the XII. World Jamboree in Idaho, U.S.A., and also with the 60th Anniversary of the first experimental Scout Camp on Brownsea Island, England, in 1907.

In celebration of Scouting's Diamond Jubilee, Scouts throughout the world are planning special camps during this period and it is hoped that most, if not all, of them will be equipped for the week-end of 5th/6th August with an Amateur Radio station "linking" them with stations at both the World Jamboree and on Brownsea Island. In some countries, school holidays do not fall in August. Scouts in these countries can take part in the J.O.T.A. in the usual manner—by visiting a friendly Amateur Radio operator. With very few exceptions, every member of the Movement will be able to share in the celebrations—whether as a participant in the World Jamboree, or in a "link" camp, or from his home town. Short wave listeners are, of course, very welcome participants and many of our most useful reports in the past have come from these sources.

The World Bureau station VE3WSB will NOT operate during this J.O.T.A., since most of its staff will be attending the World Jamboree. Instead, its place will be taken by K7WSJ (King Seven World Scout Jamboree) operating from the Jamboree site at Farragut State Park in Idaho, U.S.A. This station will operate part-time from 1st to 9th August except for the period of the 10th Jamboree-on-the-Air, when it will be in continuous operation for the full 48 hours of the event, using three complete stations and the following frequencies according to prevailing conditions:—

Band	C.W.	S.S.B.
80 Metres	3,525 Kc.	3,950 Kc.*
40 Metres	7,025 Kc.	7,290 Kc.*
20 Metres	14,025 Kc.	14,290 Kc.
15 Metres	21,025 Kc.	21,290 Kc.
10 Metres	28,025 Kc.	28,590 Kc.

Note that the higher frequency in each band is of necessity, in the U.S.A. segment, in order to comply with local licence regulations. Note also that frequencies indicated by an asterisk are outside the approved Australian frequencies and Groups should not make any attempt to use these two particular frequencies.

A special station will operate from Brownsea Island, using the call GB3BSI. The originator of the J.O.T.A., Les Mitchell, will be in charge of this station. No information as to the frequencies to be used are available as yet, but this information will be passed on as soon as it comes to hand.

Both the above stations will issue special QSL cards to all stations they contact.

CONTEST CALENDAR

July 8/9: N.Z.A.R.T. Memorial Contest (3.5 Mc. only).
July 8/9: R.S.G.B. 1.8 Mc. "Summer" Contest.
August 12/13: Remembrance Day Contest.
August 12/13: 13th W.A.E. DX Contest (c.w. section).
September 9/10: 13th W.A.E. DX Contest (phone section).
October 7/8: VK-ZL-Oceania DX Contest (phone section).
October 14/15: VK-ZL-Oceania DX Contest (c.w. section).
October 14/15: R.S.G.B. 21/28 Mc. Telephony Contest.
October 28/29: R.S.G.B. 7 Mc. DX Contest (phone section).
November 11/12: R.S.G.B. 7 Mc. DX Contest (c.w. section).

"THE THING"—TRANSISTORISED

AN EXPERIMENTAL SIDEBAND EXCITER

PART THREE

K. A. KIMBERLEY, VK2PY*

RUBBER CRYSTALS

The decision to change the frequency of my previous crystals was made with some slight trepidation. However, having literally decided to cross the "Rubicon," I was pleased for doing so. The results were good and the experience gained was invaluable.

Literature consulted revealed two approved methods. One being plating, which lowers the frequency, whilst an increase in frequency results from edge grinding. Both methods were tried at VK2PY and I am able to report that reasonable success was achieved with both methods.

Plating Method

The plating method will be described first, the bath for which is made up as follows:—

Copper sulphate: 30 gms.

Sulphuric acid: 10 c.c. (**warning**, see note).

Alcohol: 10 c.c.

Water: 200 c.c.

Both the copper sulphate and acid are obtainable from the local chemist. **Warning**: The mixing of concentrated acid and water is dangerous. It is, therefore, advisable to have the chemist do this for you. Naturally the amount of water added to the concentrated acid should be substracted from the total requirement. The alcohol (not drinking type, although a swig or two would have been helpful) used was ordinary metho. Gently heat the water and add the sulphate, stir well and when the crystals have dissolved pour the solution into a glass tumbler. Obtain a length of heavy gauge copper wire, for use as an anode, and instal in tumbler as shown in Fig. 9.

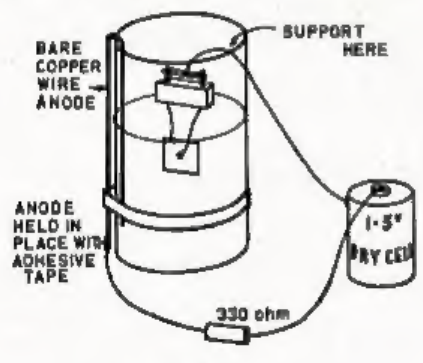


FIG. 9

Some initial practice on less valuable objects is recommended as a starter. I used a sixpence because the crystals were silver plated. For your first experiment, substitute a 22 ohm resistor in place of the 330 ohm. Lower the "zac" into the solution as shown in Fig. 9 and add about half of the specified amount of acid and metho. Gradually add lesser amounts until the plating becomes smooth and copper coloured.

Five minutes' plating will have the sixpence looking like two cents. As plating is reversible, interchange the battery connections and "hey presto" some minutes later the sixpence will be restored to its original condition. A slight amount of rubbing with the fingers will remove any residual deposit of discolouration.

Replace the 330 ohm resistor and give the same treatment to another "zac". This is where things seemed to go haywire. Half an hour's plating resulted in a deposit so light as to be practically non existent. Closer inspection revealed a fine even coating so thin that the silver colour of the coin shone through. This had me worried, however it was soon learnt that this is the ideal condition. Any attempt to deposit copper at a faster rate results in control of the process being lost.

Before commencing operations on your crystals, make sure that they are active and measure their frequency of oscillation, as a reference will be needed to gauge the progress of frequency shift.

We are now ready for the "Rubicon". Carefully remove the two small screws in the bottom of the crystal holder and then gently remove the top cover. Next wrap some light wire around both pins and lower into plating bath. Try to keep as much of the holder as possible out of the solution as this makes for easier cleaning.

After about five minutes remove the crystal from the bath. Dunk it into warm water, then into metho, back into **another** container of water, agitating it for several minutes and then into another container of metho or spirits. When **completely** dry compare the frequency against the original reference. You will now have a guide as to time required for a given frequency change.

At VK2PY 10 minutes was required to change a channel 25 crystal from 416.66 Kc. down to 415.550 Kc. It was soon discovered that 2 Kc. was about the maximum change obtainable without reducing the Q of the crystal to a point where it becomes useless. If this happens, don't worry, the crystals are recovered by reverse plating. Of course the same treatment is given when the required frequency has been considerably overshot. Where the overshoot is only small, it was found better to bring the frequency back by edge grinding. This will be described in detail a little later in this article. It must also be pointed out that crystals can be raised from their original frequency by reverse plating, however this was not tried as it was considered to be too touchy. If too much metal is removed from the crystal you are finished with it forever (unless you have a museum). As this represents a possible loss of hard-earned "hoot", it was considered wise to avoid this method altogether.

Before proceeding on to the grinding method, I must emphasise that care, extreme cleanliness, and patience must be observed throughout the whole process. It is better to spend time rather than end up with a heap of useless quartz crystal.

Edge Grinding

Having mastered the plating method, you are now ready to be initiated into the mysteries of edge grinding. Shifts of 10 Kc. and over are easily obtainable and in my opinion this method is far superior to plating.

The requirements are a small piece of wet and dry (about 240 grade) rubbing paper, a pair of tweezers, a steady hand, and a strong wrist. The method here is as follows:

Remove the two small screws in the base of the holder and carefully remove the top cover and, of course, you have measured and noted the frequency. Pardon this harping on the necessity of keeping a reference point.

With your tweezers in the left hand firmly hold the crystal whilst supporting the wrist by placing it on your work bench. The crystal holder should be steadied by resting it on a support, as shown in Fig. 10. Hold the wet and dry paper (do not wet) in your right hand and give the crystal 20 or 30 sharp rubs along the top edge as shown.

It would be wise to re-measure the frequency of the crystal in order to gain some clue as to how many rubs will be required to shift the crystal to the correct frequency. Shifts of over 1 Kc. are easier to obtain by operating on two adjacent edges. "Gently, Bentley," is the order of the day here. Once the wires that are soldered to the crystal come adrift your interest in that crystal is suddenly terminated.

I suffered from what at first sight appeared to be an irrecoverable casualty. Whilst striving for a large frequency change, I guess I was a trifle heavy handed with a channel 24 crystal and managed to chip off about 1/16" square from one corner. Before consigning it to the nearest w.p.b., some curiosity caused me to plug the wreck into my test oscillator. Wonder of wonders, it still oscillated and with tons of activity. In fact I had a brand new channel 30 crystal. This should give the reader some idea of how much change can be obtained by edge grinding. So much for grinding, remember any overshoot in frequency can be corrected by a few minutes in the plating bath.

The relative merits of the two methods are set out in Table 1.

Well chaps that's about it as far as crystal changes are concerned. Perhaps at some future date I might try my hand at high frequency crystal filters.

* 5 Don Street, Newtown, N.S.W.

However, the severe case of writer's cramp now being suffered by the author may make it mandatory for him to employ a secretary to do the writing!

Plating Method	
Advantages	Disadvantages
Easily controllable. Reversible. Low breakage risk.	Messy. Various solutions easy to spill. Limited frequency change. Preparation time. Clean-up time.
Edge Grinding Method	
Advantages	Disadvantages
Easily controllable. Large freq. shifts. Clean. Fast (no special set-up required).	Breakage risk. Non reversible.

Table 1.

TEST GEAR FOR ALIGNMENT OF SIDEBAND RIG

Listed in an earlier part of this article was the test gear requirements for the alignment of the transistorised sideband rig. They were as follows:—

(1) Stable bandspread oscillator.
(2) Suitable detector.
(3) C.r.o.
(4) Sweep generator.

For the Amateur who would like to try his hand at the rubber crystal act, a further requirement is a crystal checker.

A discussion of the above equipment now follows:—

Stable Bandspread Oscillator

This is a simple piece of test gear and should not cause any difficulty to the constructor. This oscillator must, for obvious reasons, be stable, so therefore some care must be taken in its construction.

Hand capacity affects are to be avoided. A piece of 12" x 12" aluminium bent into an L shape should prove a satisfactory housing.

The construction of this oscillator will not add much to the cost of the project as all parts, with the exception of the variable, will be used in other parts of the rig. Hence they are reclaimed when the filter is a going concern. Do not cut the component leads too short, otherwise they may not be reusable later.

The transistors are both OC45 types, the first (oscillator) is connected in common emitter, whilst the second is connected in the common collector configuration. The use of an emitter follower stage provides us with an ideal low output impedance point.

Little difficulty will be experienced in the calibration of this unit provided a **straight line capacity** gang is used for tuning purposes. The gang should be tapped down the coil until the frequency shift obtainable with it is in the order of about 15 Kc.

The calibration should proceed as follows: Set the variable at half scale and adjust the coil slug or trimmer capacitor so that the oscillator's frequency equals approximately that of the filter's expected centre.

Calibrate the test oscillator at five or six points by heterodyning its harmonics against broadcast band stations. The author's filter is centered around 416 Kc., hence the following stations would be suitable:—

2CY: 850 Kc. ÷ 2 = 425.0 Kc.
2SM: 1270 " ÷ 3 = 423.33 "
2DU: 1250 " ÷ 3 = 416.66 "
2NC: 1230 " ÷ 3 = 410.0 "
2GL: 810 " ÷ 2 = 405.0 "

Using the points so obtained plot a graph of dial reading versus frequency. The read-out accuracy should be more than ample for our requirements.

Note: The circuit (Fig. 11) works equally well as a crystal checker. The only modification needed being to replace the 0.001 uF. capacitor with a suitable crystal holder (octal socket, etc.).

Suitable Detector

The provision of a suitable detector presents quite a problem to the home constructor. The problem being the large voltage gradients to be measured, i.e. suppose 15 volts (the output from the filter) is used as a zero reference point, then 1.5 volts becomes the —20 db point. Okay there is nothing difficult here, however to reach the —40 db point one must be able to measure 0.15 volt and 0.015 volt for —60 db.

This represents a ratio of 1,000 : 1 and the signal really goes down into the muck. After much head-scratching, two solutions suggested themselves:

(1) Do the pass band measurements in a later stage of the transmitter, i.e. at a higher power level.
(2) Knock up a temporary valve type amplifier (valves, ugh!) as shown in Fig. 12. The borrowing of a v.t.v.m. is also required.

As I have not yet built (or even started) the power stages, solution 2 had to be used at VK2PY. However, a quick check with my sweep generator and c.r.o. produced a curve at the output of the balanced mixer identical with that appearing at the filter output. This proves that solution 1 works okay.

The amplifier is a straight forward affair and does not need much comment. T1 is a standard i.f. transformer modified by adding a tertiary winding of 3 turns over the grid winding. This tertiary couples to the filter output via the 100 ohm resistor. T1 is broadened by connecting a 100K ohm resistor across it, whilst T2 is broadened sufficiently by the action of the germanium diode detector.

The v.t.v.m. used by the author was a borrowed Voltohmist. This instrument was "just the shot" as the 0-15 volt range almost coincided with the gear's overload point, whilst on the 1.5v. scale readings down to 0.015 volt were just discernible. The noise level of the set-up was 0.010 volt.

Cathode Ray Oscilloscope

The next item on the list is a c.r.o. Mine is based on a "Radio & Hobbies" design. This particular instrument has both the vertical amplifier and sweep speed calibrated.

The vertical amplifier is directly coupled, which enables the c.r.o. to be used for measuring d.c. potentials.

In fact this instrument is a satisfactory substitute for the v.t.v.m. as described previously.

Almost any modern c.r.o. would be suitable provided that the following features are included:—

(1) Screen size at least 2½".
(2) Vertical amplifier response to about 2 Mc.
(3) Sweep speeds to 1 cm. per microsecond.
(4) Vertical sensitivity at least 0.1 volt per cm.
(5) Time base output available for driving sweep generator.

Don't let the non ownership of a c.r.o. deter you from this or any similar project. Use the old Amateur resourcefulness to borrow one. I am

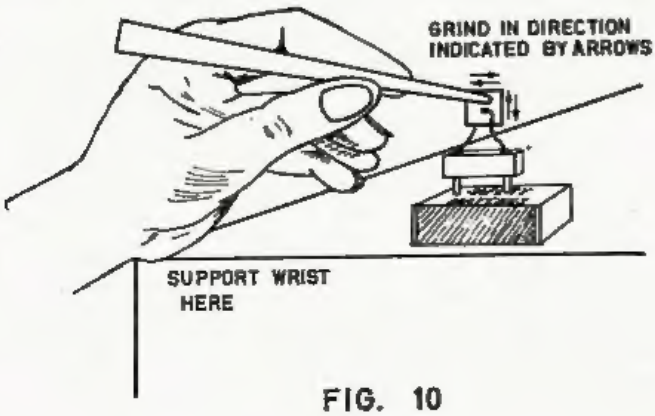


FIG. 10

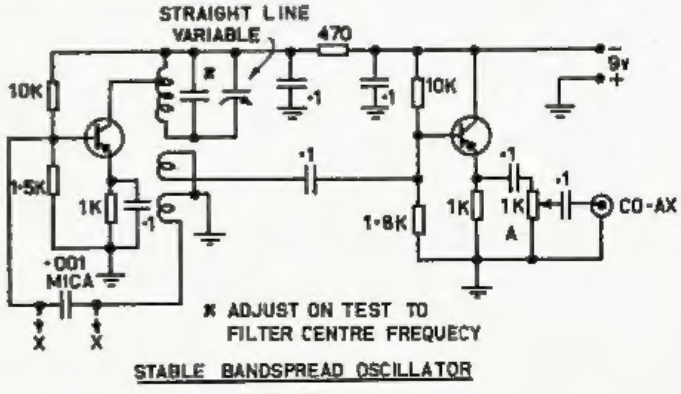


FIG 11

sure that you will be more than pleased for having done so.

If you own, or are able to borrow, a c.r.o., it is suggested that the time taken to build a simple sweep generator will be more than recouped in the alignment of the filter.

Another use for the c.r.o. is as an indicator on the crystal checker. The c.r.o. connected to the output of the checker tells, at a glance, if and how strongly the test crystal is oscillating.

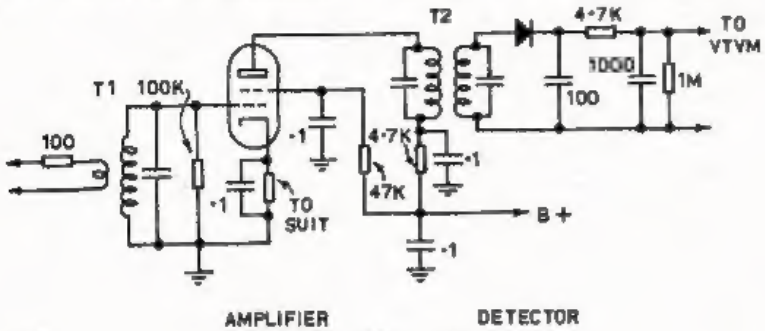


FIG. 12

Sweep Generator

The last instrument to be described is the sweep generator which has proved invaluable here at VK2PY. All receiver alignment is done with it. The serious worker can readily see what is happening to the pass band of the receiver under test.

The old method of tuning the i.f. transformers to a peak does not always give the most satisfactory result. True more gain is produced (we usually have too much i.f. gain, anyway), however the pass band will be too peaky. Tendencies to "take off" are observable. Broadbanding of fixed tuned converters is another use for the sweep generator. It could even be the basis of a "pan-adaptor".

The use of a silicon rectifier, suitably back biased, as a voltage dependant capacitor lends itself to many applications. How many times have you wanted to fit a tunable b.f.o. (or etc.) into a receiver but have been unable to fit the control in a suitable electrical position? The drilling of the front panel may tend to reduce the re-sale value of your "Joe Blow's Super 199X".

The silicon rectifier gets over this problem easily. Remove the single pot. used as a volume control (etc.) and replace it with a dual concentric type. One section is rewired as the volume control whilst the other becomes the b.f.o. pitch control. Make sure that the silicon rectifier and its isolating resistors are placed at the remote location. The d.c. control wires should be adequately by-passed.

The above method is used in my sweep generator and whilst it is possible to use any silicon device, the Q of some types drops to a low value at about 15 Mc. or so. I have used a type specially made, by Mullard, for this usage. It is a type BA102. It is not listed in Table 2 of capacity against reversed voltage as I did not have a spare and could not spare the time to remove it from the instrument.

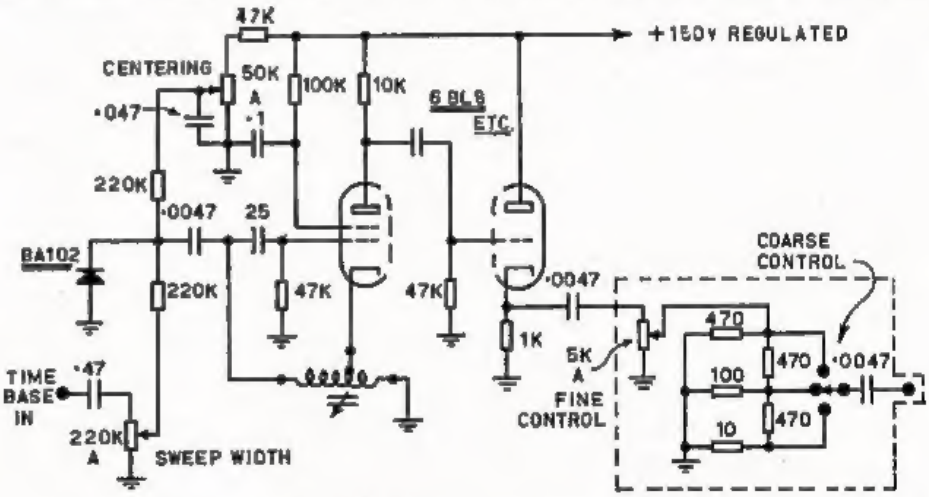
A perusal of Table 2 reveals that the capacity increases with a lowering of the reverse voltage. Naturally the reverse voltage should be sufficient to bias the rectifier to prevent clipping of any portion of the oscillator wave form. By keeping the oscillator amplitude low, the bias requirements are reduced accordingly and hence the sweep range obtainable is increased.

My generator was originally built for t.v. work and included bar and marker generators. However, these facilities have been omitted from this description.

I have used plug-in coils in order to reduce stray capacities and hence keep the sweep width as great as possible. For normal Ham use a switched set-up could be used, but it would be wise to include a switch position for a plug-in coil. This provision will save the necessity of diving into the innards of the gear any time an odd frequency comes up.

The generator uses valves as it was built before I was bitten by the transistor bug. The use of transistors should not present any great design difficulties. The valve used at VK2PY was a 6BL8 but the constructor has a wide choice of tubes to choose from. Physical layout would be easier if separate tubes are used. Say a 6AU6, etc., and a 6C4, etc.

The pentode's screen grid is used as the oscillator anode and is electron coupled to the anode: The signal is taken from the anode and is fed into the triode which is used as a cathode follower. The output signal is taken via an attenuator connected into the cathode circuit. See Fig. 13 for further details.



SWEEP GENERATOR AS USED BY VK2PY

FIG 13

Reverse Voltage	Capacity				
	S.T.C. R122A	Philips OA214	Mullard BY211	Ducon 1N2094	Anodean 1N3193
6.0 v.	6.6 pF.				
7.0 v.		22.0 pF.		30.0 pF.	
8.0 v.			14.0 pF.		
10.0 v.	5.2 pF.	18.5 pF.	12.0 pF.	25.0 pF.	16.0 pF.
15.0 v.	4.4 pF.	15.0 pF.	9.5 pF.	20.0 pF.	14.0 pF.
20.0 v.	4.3 pF.	12.5 pF.	8.7 pF.	17.0 pF.	11.5 pF.
30.0 v.	3.9 pF.	10.5 pF.	7.8 pF.	14.5 pF.	9.8 pF.
50.0 v.	3.6 pF.	8.5 pF.	6.5 pF.	12.0 pF.	8.0 pF.
100.0 v.	3.3 pF.	6.5 pF.	5.4 pF.	9.0 pF.	6.5 pF.

Table 2.—Capacity versus Reversed Voltage.

Caution: As I have repeatedly pointed out, the use of this sweep generator makes the alignment of the crystal filter easy. However its use is not without pitfalls.

The first being the use of an excessive sweep speed. This causes the filter to ring and shows up as damped oscillitary waves along the flat top portion of the band pass curve. The best speed was found to be 50 millisec., at this speed the c.r.o. moving spot just merges into a continuous line. The flicker is

(Continued on Page 17)

TRANSISTOR AMPLIFIER DESIGN

PART FOUR

R. L. HARRISON, VK3ZRY*

CLASS B AMPLIFIERS

A class B amplifier is biased so that it conducts for only 180° of a sinewave input cycle, as previously defined. That is, for an upward signal fluctuation, the transistor turns ON, while for downward signal fluctuations it remains OFF.

Thus, if we wish to amplify a full sinewave, using a class B amplifier, we must have two devices in a symmetrical arrangement being driven 180° out of phase. That is, one device ON while the other is OFF. The most popular arrangement is push-pull using centre-tapped transformers (see Fig. 1).

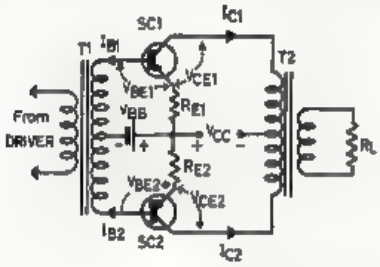


FIG 1

The advantages of class B amplifiers are as follows:—

1. Theoretical maximum efficiency is 78% versus 50% for class A. Practical efficiencies approach 75%.
2. Quiescent power consumption is very low, whereas class A stages constantly draw power.
3. Even-harmonic distortion can be reduced to a minimum.
4. Two transistors share the power dissipation.
5. No net d.c. current flows through the output transformer, thus magnetising flux is zero, keeping the transformer weight low.

CROSSOVER DISTORTION

Transistor base characteristics are far from ideal, and if operated at cut-off, will produce a severe form of distortion called "crossover distortion". For small input signals this is particularly bad, the effect gradually decreasing as the signal increases (see Fig. 2a).

To overcome this, the transistors are given a slight forward bias (Fig. 2b). The transistors are biased to what is called "extended cut-off" (really class AB operation). For germanium transistors this value of extended cut-off bias is around 0.15 to 0.2 v. For silicon transistors this is 0.55 to 0.7 volt.

DESIGN PROCEDURE

Before attempting to design your class B amplifier, you should obtain the collector and base characteristics of several suitable transistors. Keep in mind the power output limitations as

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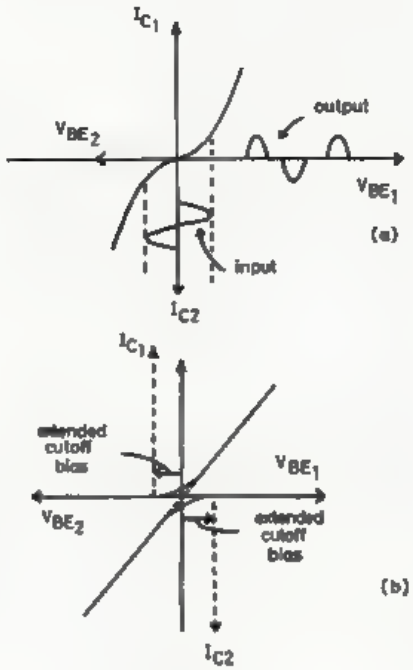


FIG.2.

set out in Part Three. You will find the design procedure very similar to Part Three.

1. Choose the power output desired and add 20% to account for losses.

i.e. P_o = Power desired + ⅛ power desired . (1)

2. Calculate P_c max. from the following equation:—

$$P_c \text{ max.} = \tfrac{1}{4} P_o \quad \ldots\ldots\ldots (2)$$

3. Choose V_{cc}. Check to see that V_{cc} is less than V_{ce} max. for any of the transistors. Discard any transistors that have V_{ce} max. less than V_{cc}.

4. Choosing your transistor: Select one that has a P_c max. somewhat greater than the value found in equation (2).

5. Calculate the collector to collector load resistance R_{cc}.

$$R_{cc} = \frac{2\ V_{cc}^2}{P_o} \quad \ldots\ldots\ldots (3)$$

Check that I_c peak (= 4 V_{cc} ÷ R_{cc}) is less than the maximum allowable collector current for the value of V_{cc} used. If I_c peak exceeds max. allowable I_c then choose another transistor and check again. If this does not work out, increase R_{cc}.

6. Determine R_B for each transistor from the appropriate graph. Graphs 1 and 2 are for germanium transistors and Graphs 3 and 4 are for silicon transistors.

If the graphs do not go up to the value of R_{cc} you calculated, then use the following equations:—

For germanium transistor:

$$R_B = \frac{5\ V_{BB}\ R_{cc}}{4\ V_{cc}} \quad (4)$$

For silicon transistors:

$$R_B = \frac{V_{BB}\ R_{cc}}{2\ V_{cc}} \quad \ldots\ldots (5)$$

where V_{BB} is the value of extended cut-off bias. For germanium transistors you can assume V_{BB} = 0.15 volts, and for silicon transistors you can assume V_{BB} = 0.6 volt.

Where R_B becomes very small, less than 2 ohms say, a rather neat little trick can be employed. Use a small length of toaster element (an inch or two), as the emitter resistor. As the average power increases, so does the junction temperature. The current through R_B increases as I_c increases, the length of toaster element increases its temperature, this increases its resistance. Thus providing some compensation for changes in forward conductance in the emitter-base junction due to temperature rise.

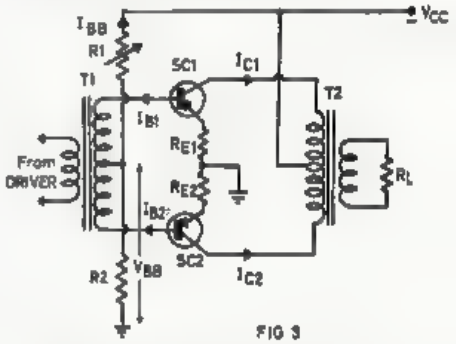


FIG 3

7. Determine R1 and R2 (Fig. 3).

(a) First determine I_B for small signals. Go to the collector characteristics graph (I_c versus V_{ce}) and find the value (I_B) for one of the lowest curves (see Fig. 4). Now let I_{BB} = 10 I_B (small signals).

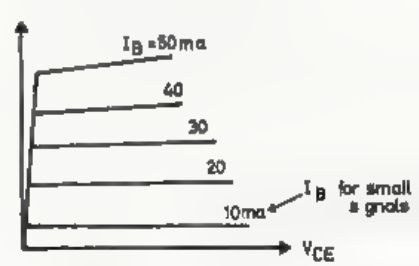


FIG.4.

(b) Now

$$R1 \simeq (V_{cc} - V_{BB}) \div I_{BB} \quad (6)$$

and

$$R2 = (V_{BB}\ R1) \div (V_{cc} - V_{BB}) \quad (7)$$

where V_{BB} is somewhat greater than the extended cut-off bias to overcome the voltage drop due to the resistance of the secondary winding of T1.

It would be a good move to make R1 a wire-wound pot. of appropriate value and wattage to enable some adjustment to be made.

This method of bias gives no thermal stability of the bias past about 30°C. Where it is likely that a wide variation

in temperature will be encountered, then some compensation for changes in V_{BB} will have to be included. This will be described later.

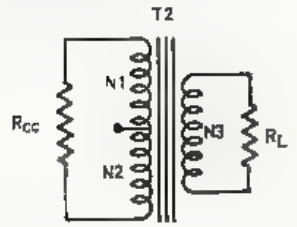


FIG.5.

8. Now for the output transformer T2. Let's take a look at the equivalent circuit (Fig. 5).

The load on the secondary (R_L) could be a speaker or the modulation impedance of a transmitter. The impedance across the primary is R_{CC} as found from equation (3).

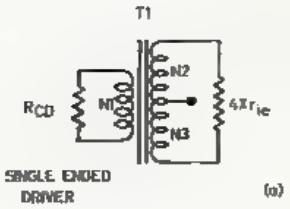
Now—

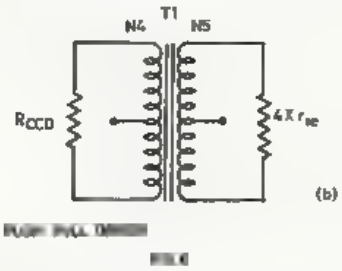
$$(N1 + N2) \div N3 = \sqrt{R_{CC} \div R_L} \quad \ldots\ldots (8)$$

where (N1 + N2) is the total primary turns, and N3 the total secondary turns.

It is recommended that the primary be bifilar wound to preserve balance and reduce transient responses.

9. The input or driver transformer (T1) comes next. Now we could have either a single-ended driver or a push-pull driver, see Figs. 6a and 6b respectively. The loads on primary and secondary are shown also.





First determine r_{ie}.

(a)—

$$I_B \text{ peak} = I_C \text{ peak} \div h_{FE} \text{ min.} \quad \ldots\ldots (9)$$

where I_C peak $= 4\ V_{CC} \div R_{CC}$ (see Fig. 7) and h_{FE} min. obtain from transistor data.

(b) Now go to the base characteristic curves (I_B versus V_{BB}) (Fig. 8) and find V_{BB} peak.

(c) Now—

$$r_{ie} = (V_{BB} \text{ peak} - V_{BB}) \div I_B \text{ peak} \quad \ldots\ldots (10)$$

where V_{BB} = extended cut-off bias.

Next we have to calculate the power required to drive the amplifier (P_1) to full output. This is given by.—

$$P_1 = \frac{I_C \text{ peak} \times V_{BB} \text{ peak} \times 1.5}{h_{FE} \text{ min.}} \quad \ldots\ldots (11)$$

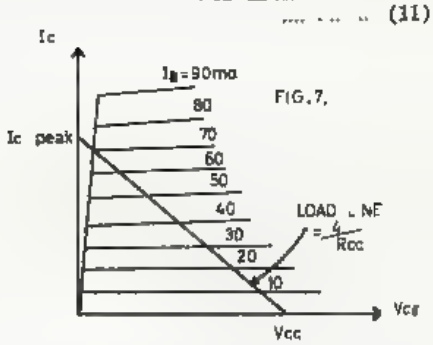


FIG.7.

Now you can drive the amplifier in several different ways. This will necessitate a different primary load, and thus different turns ratio on T1. I will give equations for the following three methods: class A single-ended, class A push-pull, and class B push-pull.

Here are the formulae for the primary loads. They will enable you to design a suitable driver.

For class A single-ended driver:

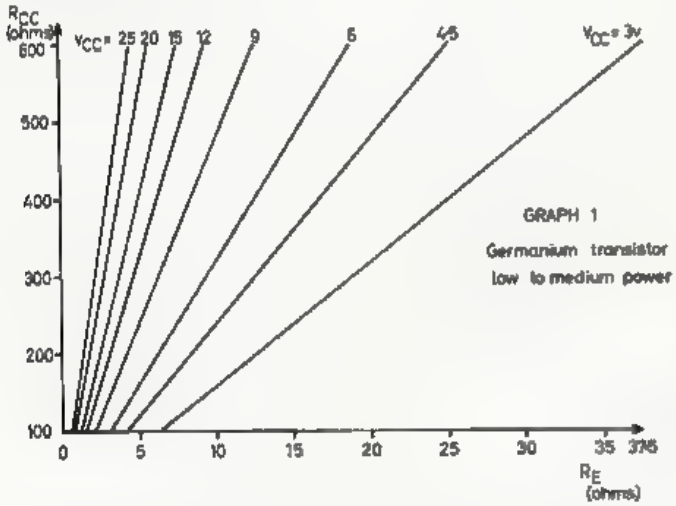
$$R_{CD} = V_{CC}^2 \div P_1 \quad \ldots\ldots (12)$$

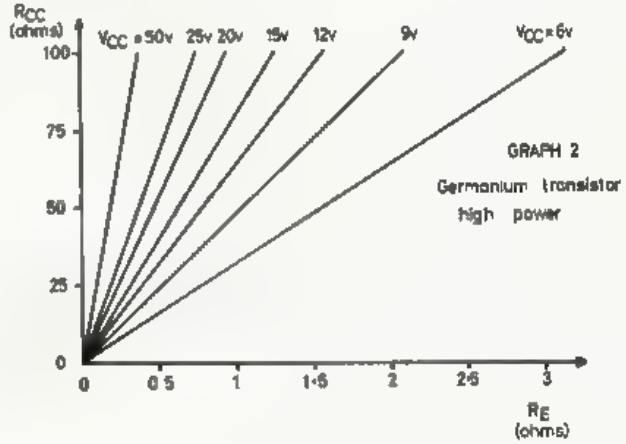
For class A push-pull driver:

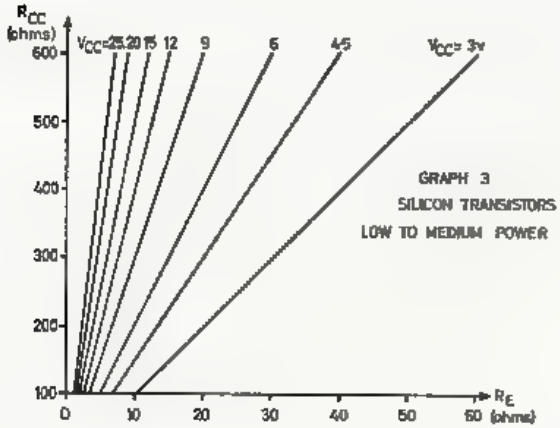
$$R_{CCD} = 2\ V_{CC}^2 \div P_1 \quad \ldots\ldots (13)$$

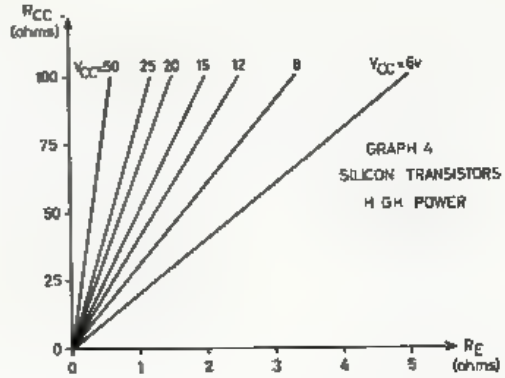
For class B push-pull driver:

$$R_{CCD} = 2\ V_{CC}^2 \div P_1 \quad \ldots\ldots (14)$$









Now for the turns ratios for T1.

(a) Single-ended class A driver:

$$N1 : (N2 + N3) = \sqrt{R_{CCD}} \div 4 \quad (15)$$

where N1 is primary turns and (N2 + N3) is total secondary turns.

(b) Push-pull class A driver:

$$N4 + N5 = \sqrt{R_{CCD}} \text{ (class A)} \div 4 \quad (16)$$

* R_{CCD} from equation (13).

(c) Push-pull class B driver:

$$N4 + N5 = \sqrt{R_{CCD}} \text{ (class B)} \div 4 \quad (17)$$

* R_{CCD} from equation (14).

where N4 is total primary turns (centre tapped) and N5 is total secondary turns (centre tapped).

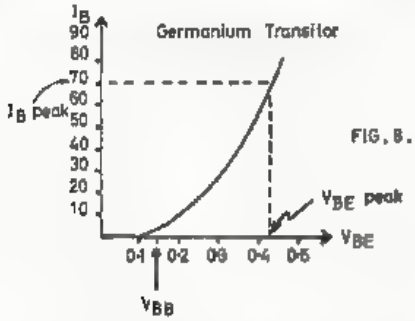


FIG. 8.

Now there you have your method for designing class B amplifiers. A short summary on the quantities you have to find will help clarify the situation.

(1) P_o = power desired + ¼ power desired.
(2) P_c max. = ½ P_o.
(3) V_{cc}. Check $V_{cc} < V_{CB}$ max.
(4) Transistor.
(5) $R_{cc} = 2\ V_{cc}^2 \div P_o$. Check I_c peak < I_c allowable.
(6) R_B from graphs.
(7) $R1 = (V_{cc} - V_{BB}) \div I_{BB}$.
$R2 = V_{BB}\ R1 \div (V_{cc} - V_{BB})$.
(8) T2. $(N1 + N2) \div N3 = \sqrt{R_{cc}} \div R_L$.
(9) T1. Consider your driver, then use appropriate equations.

BIAS STABILITY CONSIDERATIONS

As you well know, V_{BB} will vary with temperature. This change is in the order of 1 to 2 mV./°C. Now this can produce quite a shift in the bias if a wide temperature range is encountered. Where high power transistors are used, the junction temperature will rise due to power dissipation. Also the ambient temperature may rise substantially—for example, in a car standing in the sun, the internal temperature in certain places may be 15 to 20°C. higher than the external temperature.

Now, all increases in temperature will increase V_{BB}, gradually increasing I_C, which increases the junction temperature and so on until the transistor "runs away" and destroys itself. This is a highly undesirable state of affairs.

There are several ways to prevent thermal run away. One is to limit the temperature rise of the transistor by mounting in on a heat sink (more about that later). Another way is to compensate for the changes in V_{BB}. This is very suitably done by using a suitable diode to control V_{BB} (see Fig. 9).

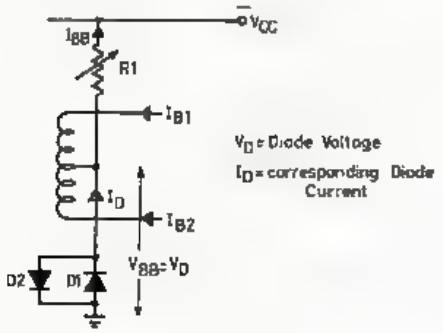


FIG.9.

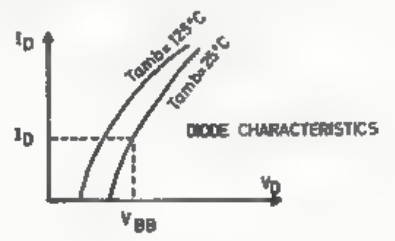


FIG.10(a).

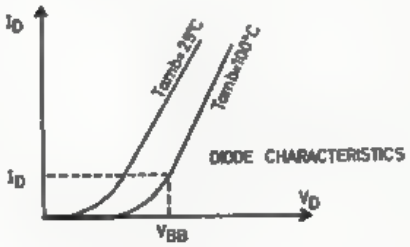


FIG 10(b)

Now D1 can be chosen so that it changes its forward voltage drop at the same rate as the emitter-base diodes of the transistors. R1 is adjusted to give the correct bias to the transistors to prevent crossover distortion. The purpose of D2 is to provide a low impedance return for the base drive circuit. D2 has no effect on bias stability.

To find a suitable diode for D1, look for one that has an I_D max. greater than I_B peak. If you are using germanium transistors, look for a germanium diode. For silicon transistors use a silicon diode.

Having chosen your diode, the next thing you wish to know is I_D. Determine this from the diode characteristics (I_D versus V_D) (see Figs. 10a or 10b—diode characteristic curves can be shown either way). Use the curve for the lowest ambient temperature (T_{amb}) shown (usually T_{amb} = 25°C.). Locate V_{BB} on the V_D axis. Now V_{BB} should be slightly higher than the extended cut-off bias (V_{BB}) to account for losses in T1. A good rule of thumb is:—

Germanium, V_{BB} = 0.2 to 0.25 volt.
Silicon, V_{BB} = 0.7 to 0.8 volt.

Now find I_D as in Fig. 10, then calculate R1 from the following formula:—

$$R1 = \frac{(V_{cc} - V_{BB})}{2 \times I_B \text{ (small signals)} + I_D} \quad (18)$$

I suggest you make R1 a pot. to allow for adjustments that may be necessary, as the driver transformer secondary resistances are unknown. D1 and D2 can both be of the same type.

This system can be used to provide compensation for bias changes, due to temperature change, in class A amplifiers (refer to Part Three). You will find that V_{BB} is higher than that for class B amplifiers, so just connect sufficient diodes in series to make up the voltage drop for V_{BB}. Choosing the diodes is the same as for class B. Also, when calculating R1, $V_{BB} = V_{BB} + V_{BE}$ (refer to Part Three).

A circuit is given in Figs. 12a and 12b. All diodes are of the same type. Make sure the diodes are connected in the right polarity for the transistors in use (i.e. Fig. 12 shows NPN transistors; reverse the diodes for PNP transistors).

HEAT SINKS

Any transistor is capable of supplying a substantial amount more power when it is mounted on a heat sink of adequate proportions. The efficiency of a heat sink is determined by its thermal resistance. The thermal resistance is affected by the surface, material, colour, if the air flow around it is restricted or free, and thermal contact to other heat conductors, of the heat sink. Thus, heat sinks are often painted black (good thermal radiator), have fins (to increase surface area) and are mounted in easily accessible places or on metal chassis.

High power transistors are made in a case that facilitates attachment to a heat sink. Usually the case has the collector internally connected to it, and where the collector has to be insulated

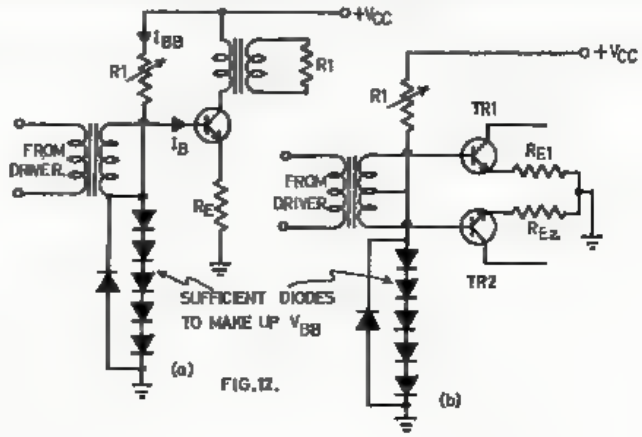


FIG.12.

from earth, a mica washer can be obtained (as well as bolt hole insulators). Alternatively, the heat sink can be insulated from earth, but this is not always practicable as the chassis is often used as a heat sink.

Extruded aluminium heat sinks, meant for power transistors, are obtainable in various sizes, e.g. 2 x 4, 4 x 4, and 6 x 4 inches. Most are made to mount a single transistor, but some are made to mount two transistors. The heat sink you choose should be as large as you can afford, keeping in mind the power involved.

Small, low power transistors have a body that can be clamped onto a chassis or a metal fin. The manufacturers often recommend a suitable size and shape of the metal fin type of heat sink. You can either buy one or make one (see Fig. 11a).

Other ingenious ideas can be used to make heat sinks. A small length of copper tubing, with an inside diameter just too small to fit over the body of the transistor, can be cut down in length and sprung apart so that it makes a tight fit over the transistor (see Fig. 11b).

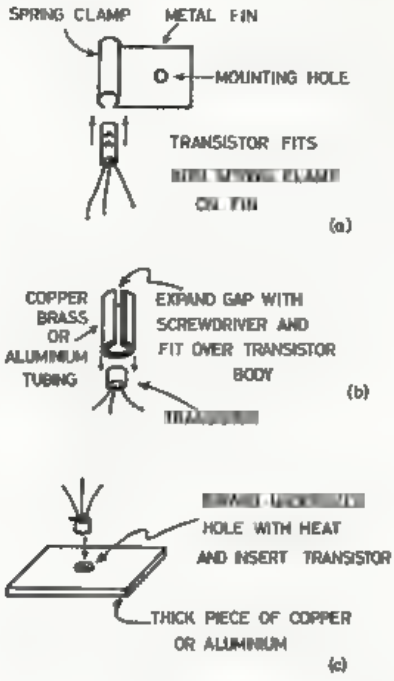


FIG. 11.

A hole, just smaller than the transistor body, could be drilled in a thick piece of aluminium, brass or copper, the metal heated and the transistor dropped into the expanded hole (Fig. 11c). When the metal cools and contracts the transistor is firmly held, making good thermal contact with the transistor and heat sinking is very effective. You may experience trouble if you attempt to remove the transistor however.

Where practicable, the diode (or diodes) in the bias circuit (if used) should be mounted on the heat sink near the transistor so that it is subject to the same temperature changes as the transistor. Insulate the diode with mica (very thin) if necessary.

Well, that concludes this article on transistor amplifier design. The next article (Part Five) will be on class B and class C r.f. transistor amplifiers. There will be a follow up article (Part Six) on practical, working circuits, that have been constructed from this series of articles.

This series has been longer than I intended, but that was of necessity so that a complete amplifier stage could be designed and constructed with adequate safety precautions.

I would, at this stage, like to thank a number of my friends who gave me abundant encouragement and criticism as well as help during the writing of these articles. Thanks to Peter Cohn (VK3ZPC), Dennis Long (VK3ZVL), John Hill, Graham Young, Sue Tomlinson and Mary.

Any queries should be addressed to me and please enclose a s.a.e.

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SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

As these notes are being written while on vacation in VK3 (of all places) the subject matter cannot be very technical and I ask the more fastidious readers to refrain from taking me to task over details which cannot be checked in the absence of my technical library, for which there was just no room in the caravan.

There are several items which come to mind and may interest home constructors, one dealing with variable frequency oscillators and the other concerning a rather unusual but quite logical design for an s.s.b. exciter.

Before getting under way with these, however, may I thank the many correspondents who have written to me on all sorts of sideband matters from exciters to transistors, and pardon myself for not replying for the reason stated above. Many people accuse me of being so pro-sideband that I must be anti-other-modes. This is not strictly true, as I have some a.m. equipment for 6 and 2 metres, myself, but I would say to those who are obviously anti-sideband that they, too, may learn something from this column, as linear amplifiers will do quite a good job of amplifying a.m., even though the efficiency may be low. Taxi-phones and 122 sets, for example, may be fed into linear amplifiers and the equivalent of 75 watt a.m. rig can be obtained at less cost and space than using high-level plate modulation.

Having listened to thousands of a.m. signals throughout the years, I may truthfully state that the number of well adjusted class C plate-modulated p.a. stages in the Amateur bands is quite small. It is a very difficult task to make sure that such a stage has the correct grid current, grid voltage, screen voltage, plate voltage, modulator output impedance, load impedance (r.f.), neutralisation, and tuning, all together at the same time. I am not saying that it is impossible, but it is difficult.

The class B linear amplifier, especially the AB1 type which draws no grid current, is much easier to adjust because there are many less variables to consider. It does not take a genius to realise this, one needs only the normal complement of fingers to count with.

In conclusion, my own 2 metre final (a.m.) appears to be almost impossible to neutralise, and I know it, but not one person apart from myself worries about a little "broadness" on 2 metres.

BUILT-IN V.F.O's AND HEAT

This small hint has proved useful in many Amateur stations, not only in s.s.b. equipment. Every receiver has a v.f.o. and some of the cheap ones are plagued with heat drift. Substitution of silicon rectifiers for the h.t. valve rectifier, reduces the heat liberated inside the box and addition of a VR tube in the (rewired) rectifier socket, really helps the frequency stability.

There is still the problem of heat radiation and conduction, however, and I have found that drilling a row of holes in the chassis, either around a heat source such as the audio output tube socket, or around the r.f. coil box, will reduce the heat conduction. Holes should be spaced to leave about one-third of the hole diameter between each hole to retain sufficient rigidity in the metal.

The radiation and convection of heat may be reduced by fixing half inch thick foam polystyrene, you know the stuff—it looks and feels like solid froth, and is an excellent heat insulator and reflector—to the outside of the v.f.o. box or between hot objects and the tuning components. This is really good gen, and the improvement in my deltahet tuned oscillator, when a sheet of this was cut to form a 6" x 4" barrier around the 2 to 3 megacycle tuned i.f. section, was quite marked. The receiver appears to stabilise in about 7 or 8 minutes instead of about 15 to 20 minutes previously. Do not attempt to glue this foam with polystyrene cement as the solvent has a sad effect on the foam and it melts away like "fairy floss". Water based cements, such as the "gums" and p.v.a. wood-worker's glue, are quite good, or the assembly may be fixed to the desired shape with white adhesive tape (fabric type—from the chemist). If you wish to change its colour, then cover the whole assembly with aluminium (cooking) foil, and spray paint over that—not onto the foam, or you will have further solvent troubles.

And where does one obtain this foam? Well, you will see it formed into all sorts of packing pieces for fragile and expensive items from chinaware to electronic instruments—even meat trays in the super-markets—or the larger builders' hardware merchants sell sheets up to 6 x 3 ft. for special insulation jobs.

A STRAIGHT S.S.B. EXCITER

Most s.s.b. exciters are far from straight as they mix frequencies up and down, and then have to get rid of all the spurious beats to the point of keeping them more than 60 db. down below the required signal.

An interesting exciter designed by G3HRO was described in "Wireless World" for March and April 1967. This exciter is quite unusual as the v.f.o. tunes at half of the final frequency for 40 and 80 metres, and a third of the final frequency for 20, 15 and 10 metres. The balanced modulators are fed with final frequency at plus and minus 45 degrees from five different r.f. phase shift networks, one for each band. The two balanced modulators are type 7360 valves, which are quite superior for balancing out carriers, and employ the phasing method of generation of s.s.b. This part of the circuit is almost identical with the circuit in the 1965 A.R.R.L. Handbook, from which it was no doubt taken.

Since the output from this generator is reasonably high, the signal feeds straight into a 5763 driver and thence to a 4CX250B final stage, which can operate at the full legal rating for U.K. of 400 watts p.e.p. A very neat little transistorised vox circuit is included.

Of course, a separate h.v. power supply of over 1,500 volts is needed for the 4CX250B, and a blower is required to cool it, but if you do not want to run such high power, 6146s or the t.v. line tubes may be installed with similar grid bias and screen grid supplies, but plate voltage of 700-800 volts only, should be applied to these smaller tubes.

(Continued on Page 22)

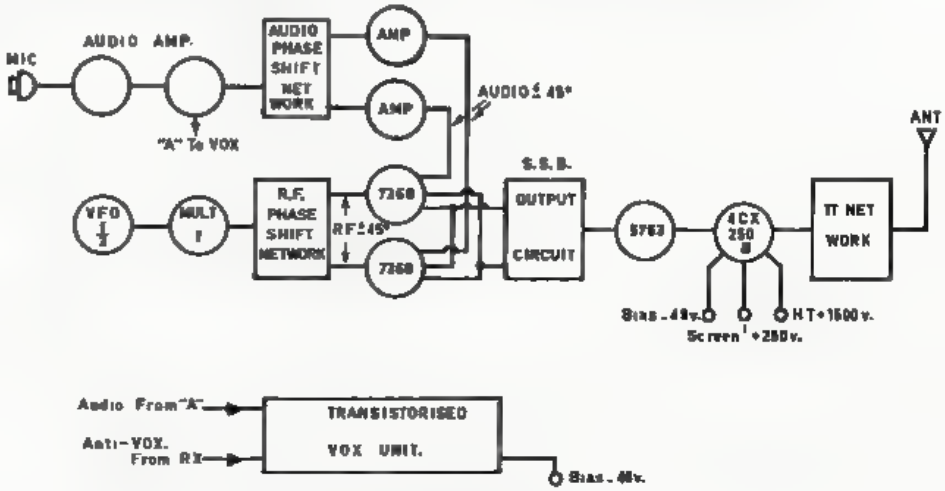


FIG. 1. S.S.B. EXCITER BLOCK DIAGRAM.

Fully described in "Wireless World," March and April, 1967.

FEDERAL COMMUNICATION No. 1

WHAT IS THE I.T.U.?

G. PITHER, VK3VX, W.I.A. Federal Liaison Officer

It is the International Telecommunications Union and it has grown from an organisation founded in 1865 to establish telegraph regulations. It is the world body established to maintain order in the Radio Frequency Spectrum. As such, it sets the limits of the frequencies used by Radio Amateurs, and it has in its hands the very existence of Amateur Radio.

HISTORY

For more than 100 years an international body has existed to establish international agreements covering radio communications, and an outline of its history is given here:—

1837—First electric telegraph.

1849—The telegraph first used internationally.

1865—Paris, 17th May. Foundation of the **International Telegraph Union** by twenty States with the adoption of the first Convention. First Telegraph Regulations.

1868—Vienna Conference. Bureau of the Union set up in Berne.

1871-2—Rome Conference.

1875—Saint Petersburg Conference. New Convention which lasted until 1932.

1876—Invention of the telephone by Alexander Graham Bell.

1885—Berlin. Administrative Conference makes first I.T.U. provisions for international telephony.

1895-6—First wireless transmissions.

1903—Berlin. Preliminary Radio Conference of nine States.

1906—Berlin. First International Radio Conference with 29 States. Convention and Radio Regulations drawn up. Adoption of SOS signal.

1912—Titanic disaster. London Radio Conference. Improved Radio Regulations.

1924—Paris. Creation of C.C.I.F. (International Telephone Consultative Committee).

1925—Paris. Creation of C.C.I.T. (International Telegraph Consultative Committee).

1927—Washington Radio Conference with 80 States. Establishment of C.C.I.R. (International Radio Consultative Committee). **First allocation of radio frequencies to the various radio services.**

1932—Madrid Conferences. Organisation's title changed to International Telecommunication Union. First single International Telecommunication Convention. New Radio, Telegraph and Telephone Regulations.

1938—Cairo Administrative Radio and Telegraph and Telephone Conferences.

1947—Atlantic City. Plenipotentiary and Radio Conferences. Creation of International Frequency Registration Board (F.R.B.). New International Frequency List. Creation of the Administrative Council. Agreement with the United Nations approved.

1948—Seat of the Union transferred to Geneva.

1952—Buenos Aires Plenipotentiary Conference.

1956—Geneva. C.C.I.F. and C.C.I.T. merged into new C.C.I.T.T. (International Telegraph and Telephone Consultative Committee).

1958—Geneva Telegraph and Telephone Conference.

1959—Geneva Plenipotentiary and Radio Conference.

1962—New headquarters building opened in Geneva.

1963—Geneva Plenipotentiary, Radio, and Space Conferences.

1966—C.C.I.R. Plenary Conference.

THE WORKINGS OF THE I.T.U.

A brief outline of the organisation and functions of the Union will serve to establish an understanding of its operations. See organisation chart on opposite page.

AUSTRALIAN AMATEURS AND THE I.T.U.

From the chart a general appreciation can be obtained of the whole organisation, and it is possible to show how the Radio Amateur fits into the scheme.

Over 100 nations attend the meetings and **each has one vote.** No consideration of national prestige, population or the number of its Amateurs can change this. Needless to say, there are differences in the influence that nations can exercise, but when the votes are taken they have only one vote each.

Of equal importance to votes is the content of proposals submitted to the Conference. Before the convening of the Conference each nation formulates its own plans which embody the changes it would like to see made and the regulations which are needed to cover them. In Australia this is done in a series of preparatory meetings, and attended by representatives of the main user organisations. The representatives come from Government Departments, the Defence Services, and the W.I.A.

It is at this time that national policy is formulated for approval by the Government, and this is the brief which the Australian team presents at the I.T.U. Conference. If the policy is favourable to Australian Amateurs, the battle is half won. If it is not, the Australian Amateur will probably be the loser. There can be no question of Amateurs as such going to Geneva and "fighting for their rights". Only nations have a vote, and the Australian Amateur point of view must be incorporated in the Australian national brief before the delegation leaves for Geneva. In the same way, Amateurs in every other country can only present their case through their country's national brief.

G. Pither, VK3VX

A moment's thought will disclose a very unhappy situation here. In the last ten years a large number of new nations have emerged from old colonial empires and in most cases Amateur Radio is unknown to them; to some, it is suspect. As their numbers increase, it is conceivable that they could vote Amateur Radio out of existence! And they would, too—if only to secure the frequencies for their own national h.f. broadcast systems. Every new nation seems to require its national voice on the air, and there is no frequency space available.

W.I.A. REPRESENTATION

To ensure that Australian Amateurs are adequately represented at I.T.U. Conferences, the Amateur's national organisation, the Wireless Institute of Australia (W.I.A.) has appointed a Federal Liaison Officer to attend the preliminary Conferences and to accompany the Australian Delegation to Geneva. He is Air Commodore George Pither, VK3VX, and he has been heard on the air by many Amateurs, reminding them of the need to preserve the Amateur bands.

SUPPORT FOR AUSTRALIA'S I.T.U. DELEGATION

There is obviously a need for the Australian Delegation to be properly briefed on Amateur matters, and it becomes the duty of every Amateur, as far as it is within his capacity, to ensure that every facet of the problem is known by the W.I.A. The Institute is organising an intruder watch to control the inroads of frequency pirates. The watch will also serve to keep us thoroughly up to date in this field. Reports are also needed from members on every aspect of the Amateur Service, so that, overall, the Institute can present a complete case as part of the Australian brief for the next I.T.U. Conference. This can only be done with the help and support of every Australian Amateur.

WHAT DOES THE I.T.U. CONSIST OF?

The I.T.U. is an organisation, a Union of Member Countries. In 1963 there were 119 Members and 2 Associate Members. The Union's Headquarters are in Geneva, on the Place des Nations. In this building are to be found the four permanent organs:—

General Secretariat,
International Frequency Registration Board (I.F.R.B.),
International Radio Consultative Committee (C.C.I.R.),
International Telephone and Telegraph Consultative Committee (C.C.I.T.T.).

The present Secretary-General is Mohamed Mili.

MEMBER COUNTRIES OF THE UNION: (1963) Afghanistan, Albania, Argentina, Australia, Austria, Belgium, Bielorussian S.S.R., Bolivia, Brazil, Bulgaria, Burma, Burundi, Cambodia, Cameroon, Canada, Central African Rep., Ceylon, Chad, Chile, China, Colombia, Congo (Brazzaville), Congo (Leopoldville), Costa Rica, Cuba, Cyprus, Czechoslovak S.R., Dahomey, Denmark, Dominican Rep., Ecuador, El Salvador, Ethiopia, F.P.R Yougoslavia, F.R. Germany, Finland, France, Gabon Rep., Ghana, Greece, Group of French Territories, Guatemala, Guinea, Haiti, Honduras, Hungarian P.R., Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Ivory Coast, Jamaica, Japan, Jordan, Korea, Kuwait, Laos, Lebanon, Liberia, Libya, Luxembourg, Malagasy Rep., Malaya, Mali, Mauretania, Mexico, Morocco, Monaco, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Overseas British Territories, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Portuguese Overseas Territories, Rhodesia and Nyassland Federation, Roumanian P.R., Rwanda, Saudi Arabia, Senegal, Sierra Leone, Somali Rep., South Africa and S.W Africa, Spain, Spanish Provinces in Africa, Sudan, Sweden, Switzerland, Syrian Arab Rep., Tanganyika, Territories of U.S.A., Thailand, Togolese Rep., Tunisia, Turkey, Ukrainian S.S.R., U.S.S.R. (Russia), U.A.R. (Egypt), U.K. (Britain), U.S.A. (America), Upper Volta, Uruguay, Vatican City State, Venezuela, Vietnam, Yemen. ASSOCIATE MEMBERS: British East Africa, Singapore-Borneo Group. ADDITIONAL COUNTRIES SINCE 1963 include many of the new African nations, and bring the total up to **130 for 1967!!**

THESE COUNTRIES MEET every five years or so at a **Plenipotentiary Conference.** This is the supreme authority of the Union, ultimately responsible for all policy, which—

1. **Revises the I.T.U. Convention.**
2. **Elects the Secretary-General** (who directs the General Secretariat, which is responsible for administration and finance, publication of International Radio Telegraph and Telephone Regulations, arrangement of conferences, provision for technical co-operation, financial and admin. arrangements for I.F.R.B., C.C.I.R., C.C.I.T.T.).
3. **Elects the Administrative Council of 25 Members** (which meets in annual session, when it acts for the Plenipotentiary Conference between the latter's meetings, and it supervises the administrative functions and co-ordinates the activities of the four permanent organs at I.T.U. Headquarters in Geneva).

THESE COUNTRIES PARTICIPATE IN:

(a) Extraordinary Administrative and Special Conferences,
(b) Ordinary Administrative Conferences;

FOR: (1) Telegraph and Telephone (Revise Telephone and Telegraph Regulations),
(2) Radio (Revise Radio Regulations, and elect the 11 members of the I.F.R.B.).

The I.F.R.B.—International Frequency Registration Board—serves as "custodians of an international public trust"; it records assignments of radio frequencies throughout the world after technical examination and it advises Members of the Union on technical matters concerning harmful interference between stations. They are assisted by a specialised Secretariat.

THESE COUNTRIES JOIN WITH PRIVATE OPERATING AGENCIES in the work of:—

(a) The C.C.I.R.—International Radio Consultative Committee,
(b) The C.C.I.T.T.—International Telephone and Telegraph Consultative Committee.

These hold **Plenary Assemblies**, normally every three years, which set up study groups to study technical, operating, and tariff questions, and issue recommendations on them; they also elect Directors who are assisted by specialised Secretariats, equipped with technical apparatus and laboratories.

"THE THING"

(Continued from Page 8)

rather tiresome but has to be put up with.

The other pitfall results from the use of a very wide sweep. It is usual to employ a wide sweep during the initial alignment, say 10 Kc. per cm., giving a total sweep width (on my equipment) of about 50 Kc. This gives a pass band curve that is about 0.3 cm. wide. It was noticed that the top of the curve was rather peaked instead of flat. However as the sweep is reduced so is the above effect, until 3 Kc. per cm. is reached when it disappears altogether. About 1.5 Kc. per cm. was found to be about the optimum.

The distortion arising from the use of wide frequency sweeps is probably an extension of the first trouble mentioned, i.e. the rate of change in frequency through the filter is high even though the actual sweep speed is low.

The use of a marker generator was originally considered. "Finnagle" again reared his ugly head and this idea did not pan out as hoped. The trouble being that it was practically impossible to discern the zero beat point on the sides of the pass band curve due to their steepness.

That's all for this month, the remainder of the exciter will be described in a later article. I have not been able to do any further developmental work on the transceiving side of the project. This has been due to the time taken in writing up the story so far. However, the receiver described in the August and September 1966 issues should provide a basis for individual experiments.

☆

NEW CALL SIGNS

MARCH 1967

VK1BA—R. J. Mirdas, 149 Mugga Way, Red Hill, Canberra.
VK1LN—L. C. F Whyte, 16 Bannister Gardens, Canberra.
VK1ZJW J. B. B. White, Reid House, Allara St., Canberra City.
VK2BQ—M. Blackstone, Flat 3K, 65 Elizabeth Bay Rd., Elizabeth Bay.
VK2BFC—F C. Collins, 108 Lucas Rd., Burwood.
VK2BGC—G. H. Carruthers, 9 Macarthur St., Parkes.
VK2BKB—B. K. Brown, 9 Bank St., Meadowbank.
VK2BKE—K. E. Hicks (Dr.), 1/51 Cremorne Rd., Cremorne.
VK2BNC—N C. Bell, 49 Campbell St., Boorowa.
VK2BRO—R. W. O'Grady, 13 Girraween Ave., Wahilla.
VK2BUB—B. Unsworth, Wyee State Mine, C/o. P O., Doyalson.
VK2BZZ—G. A. Bentz, Flat 7C, M.Q., R.A.A.F., Richmond.
VK2ZMX—M A. Runagall, 5 Catherine Ave., Hillview
VK2ZON—R. Robinson, 47 Hall St., Cessnock.
VK2ZUF—P. J. Ford, 4/86 Alt St., Ashfield.
VK2ZWT—A. J. Wright, Oak St., Dorrigo.
VK2ZZB—R. Hodkinson, 49 Vernon Ave., Gymea Bay.
VK3JS—R. C Whitaker, Flat 5, 9 Thames Prom., Chelsea.
VK3AER—A. F Leversha, Station: Harcourt; Postal: P.O. Box 50, Harcourt.
VK3AUB—R. N Buzacott, 19 Hobbs Cres., Reservoir.
VK3AVM—V. R. McKenna (Rev Bro.), 1 Beryl St., West Essendon.
VK3ZFS—B. S. Farmers, Tarranginnie, via Nhill.
VK3ZQP—P S. Carne, 3 Thurling St., Mantone.
VK5HB—T. T. Hopgood, 36 Everard Ave., Keswick.
VK5NK—C. Waterman, 20 Tavistock Cres., Lynwood.
VK6VG—J. V. Griffin (Bro.), St. Patrick's College, Geraldton.
VK7ZLR—S. L. Radford, 6 Bain Tce., Launceston.
VK8XI—B. Hannaford, Eldo Tracking Station, Gove.
VK9CR—R J Conway, Station Kala Pl., Port Moresby, P; Postal: C/o. Posts and Telegraphs, Port Moresby, P.
VK9ZAF—A. Freitas (Bro.), Catholic Mission, Kavieng, N.G.

☆

FEDERAL CONTEST COMMITTEE REGRETS

In the John Moyle N.F.D. Contest results, 24-hour division, the entry for section (b) should read nil, and section (c) VK3ZF/P, 561 points, 64 contacts.

☆

OVERSEAS CONTEST RESULTS

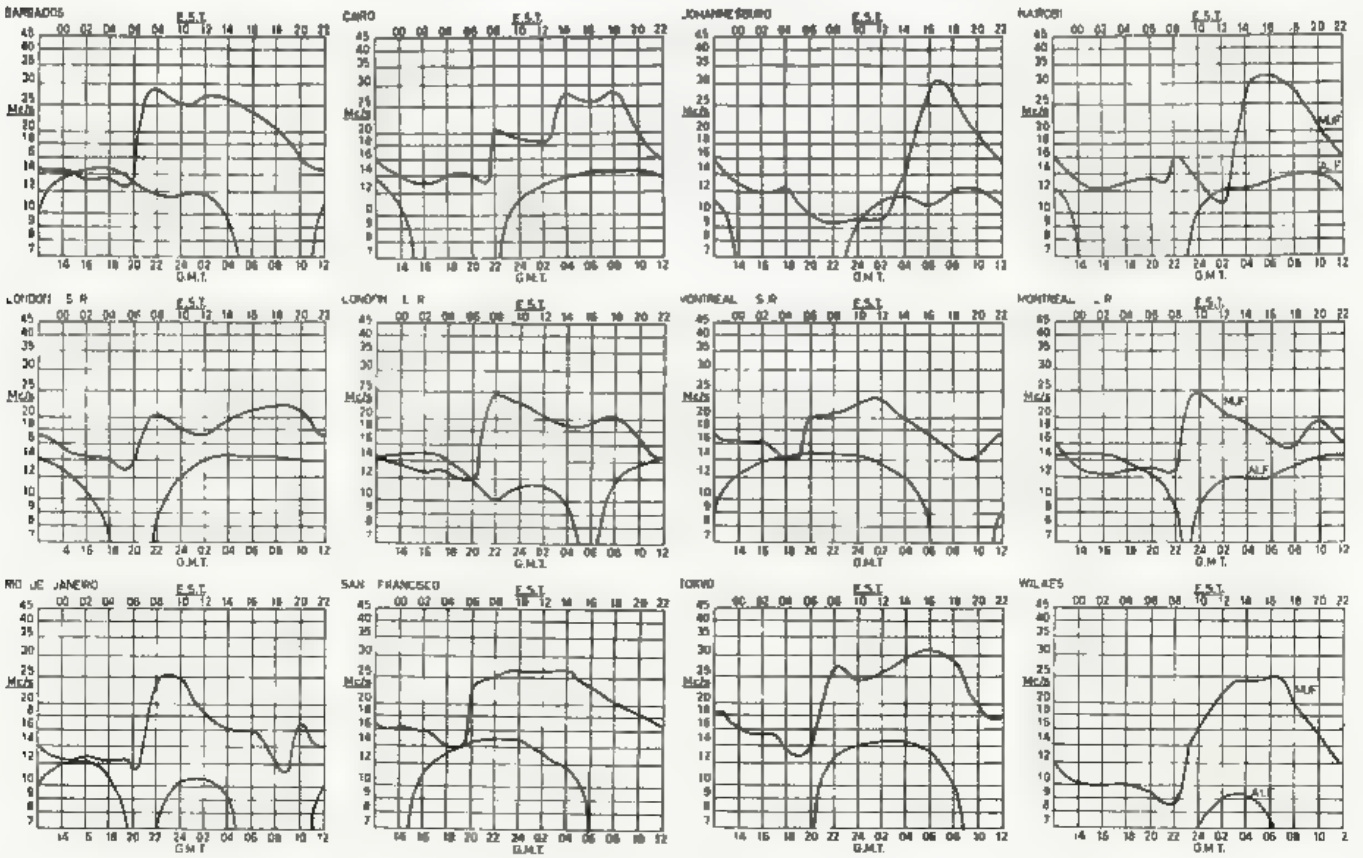
FIFTH R.S.G.B. 7 Mc. DX CONTEST (1966)

C.w. Section. VK3APJ, 50th, 850 pts.; VK5KO, 68th, 700 pts., VK3XB, 124th, 400 pts. There were 165 entrants in this section.

Phone Section: VK3XB, 37th, 200 pts. There were 38 entrants in this section.

Receiving Section, o.w.: G. Allen, Western Australia, 1st, 1740 pts.; BERS-198, E. Trabilcock, 3rd, 1300 pts.

PREDICTION CHARTS FOR JULY 1967



(Prediction Charts by courtesy of Ionospheric Prediction Service)

Book Review

RADIO AMATEUR'S HANDBOOK
1967, 44th Edition

Published continuously since 1926, during which time almost four million copies have been sold, this handbook has become the standard manual of Amateur Radio communication, as well as being an excellent reference work and training text for students.

The chapters on radio communications theory are up to date in all phases of the art, and the material on equipment construction includes transmitters and receivers for every level of cost and constructional ability. Very few special components are used and the frequency ranges catered for are similar to Australian Amateur frequencies.

Much helpful information is provided on mobile operation, antennae, test equipment, sideband and teletype.

The information on tube and semiconductor characteristics, and tube base diagrams, provides one of the most complete such listings to be found.

Perhaps the only criticisms are that this edition is little different from the 1966 edition and the attention given to semiconductor circuitry is still only slight.

Published by American Radio Relay League, Connecticut, U.S.A. Review copy from the A.R.R.L.

WORLD RADIO T.V. HANDBOOK
1967, 21st Edition

Over the years this handbook has become a must for every serious shortwave listener. The first section contains interesting articles relating to broadcasting, information about broadcasting and television organisations, technical articles and tables of practical value to listeners.

The main section of the book contains detailed information, by country, of the radio stations of the world, including addresses, frequencies, transmitting power, call signs, and station names. Also included is detailed information of programmes, including time, frequency, and beam areas of broadcasting in each language.

Not the least interesting section of the book lists the shortwave stations of the world in frequency order, enabling rapid identification of received signals.

Published by World Radio T.V. Handbook Co. Ltd., Denmark. Australian price $5.40. Review copy from Technical Book and Magazine Co., 289-299 Swanston St., Melbourne.

HOW TO BUILD AN INEXPENSIVE TRANSISTOR RADIO

Although of a standard well below usual Amateur Radio standards, this book would be an excellent answer to the many queries most radio enthusiasts receive from young people wishing to start out in electronics.

The radio described is a simple one transistor regenerative unit employing an OC44. The text is simple and clear, and extremely well supported by excellent diagrams and photographs. So much so, that a young schoolchild should have no difficulty in following the instructions without assistance.

Published by Beta Books, N.S.W. Australian price 75 cents. Review copy from A. H. & A. W Reed Pty. Ltd., 51 Whiting St., Artarmon, N.S.W.

DX

Sub-Editor: ALAN SHAWSMITH, VK4SS
35 Whynot St., West End, Brisbane, Qld.

Although 28 Mc. has slipped and is now for the winter seemingly quiet, 21 Mc. continues throughout the daylight hours to be good. Most continents can be heard and worked during each 24-hour period. Europeans around 2200z, then various areas of U.S.A. at 0000z. The South Americans and Asians appear about this time also. During the late afternoon period a few West Asians also appear, with an occasional signal from Africa. 20 mx is open mainly to U.S.A. from the late afternoons.

NOTES AND NEWS

Madiera: Hal CT3AS is very active from here. He works 7, 14 and 21 Mc. Says he will also work 28 Mc. next northern winter QSL via G2MI or R.S.G.B. His frequencies are mostly on the low end of the c.w. segment.

French Oceania: FO8BU and FO8BJ both QRV. The former 14038 and latter 21040 from 0800z. Also FO8BT.

Tanzania 5H3KJ 21055 2000z. About 449 here. QSL Bureau.

Mongolia: UA1CK/JT 14115 s.s.b. 0730z. (VK-4MY)

Br Guiana, 8R1S 14150 0646. QSL P.O. Box 739, George Town. (VK4MY)

Turkey TUBAY 14103 s.s.b. 0730z. (VK4MY) Also TA2AC still said to be QRV 14 c.w.

Gabon: Max TR8AD was on 14212 at 2300z. Also TR8AG is active. If you want a sked with the former, drop him a few lines in French. (LIDXA)

Brunei: VS5MH is back on the air again. He skeds W1DGJ each Wednesday at 1100z on 14200 transceive. Also skeds VK4EZ on Mondays.

Trucial Oman: Roger MT4BTO regularly on [illegible]. Listening 300-200.

Canton Is.: Rick KB6CZ 14200 0630z. QSL K4MQG.

Turkoman: UH8BO, Eugene, is very active 14196, listening 14203.

Cameroons: TJ1AL, TJ1AK, TJ1AJ all on the air as of now. Also TJ8MG on 14010 and 21010 at various times. (LIDXA)

Tromelin: FR7ZL/T on daily 1130z. He is xtal controlled 14118. QSL FR7ZD.

Sao Thome: Al CR5AP 14188. Listens 14200, 0630z. (LIDXA)

Niger: 5U7AL transmitting 14102, listening 14204, 0345z. (LIDXA)

St. Lucia: VP2SAB, 0425z, 14107. (LIDXA)

Antigua: Barney VP2AA 14170, 0410. QSL VE3ACD.

Ghana: 9G1GA 21273, 2300z. (LIDXA) Also 9G1HM 14040 c.w., 0800z.

Gambia: ZD3I. This call will be used by the Yasme DX-pedition, Lloyd and Iris. Listen for the pile-up.

Fernando de Norohna: PY7APS/0. This was reported unofficially to be a Don Miller stint. If so, QSL W4ECI.

Jordan: 9Q5BD will be active from early July from this spot. The prefix will be JY of course.

Malta 9H1M 0140z, 14200 using a.m. mode. (LIDXA)

Neutral Zones: Vic Crawford, HZ3TYQ, plans to operate from 8Z4 and 9K3 later this year. More info when it comes to hand. (LIDXA)

Kuwait. F9DF is trying to get a licence to operate as 9K3 next Sept. He will use 21310 as the main frequency.

Br. Phoenix. K6CAA hopes to operate from this island very soon. More info later. (LI DXA)

Monaco: PA0GHB will be active during July 13-16. The ZB2 2-9 Sept. and PX1 27-29 August and Sept. 13-16. 14 s.s.b. main mode. (LIDXA)

Isle of Man: GD3ENK is on 14332 at 2050. (LIDXA)

Jan Mayen: JX5AK 14060 2000z. Very QRL with lots calling.

Marcus Is.: KG6IF on 14294, 0450. QSL via W8ANB.

Crozet: FB8WW on 14200 transceive. QSL W4MYE.

Saudi Arabia HZ3SJ, 14345, 0500.

Ceylon 4S7NE on 14300 around 1200.

Chad TT8QQ 14025 1800 and sometimes on 7 and 21 Mc. Also active is TT8AB 21140 a.m.

Faroes: OY5R 14312 2150. Also OY4M at 0100 on 14053. Another is OY7S 14325. (LI DXA)

Swaziland: Archie ZD5R is taking on all comers on 14167 around 0600.

Swan Is.: KS4CC using all bands. However he is easily workable on 14254 0830z. (LIDXA)

Syria. YK1AA 14220, 0600 and 1800z.

Bahrein: MP4BBL 14225, 2000. (LIDXA)

Canary Is.: EA8CB 14305, 2054.

Qatar MP4QAL was reported active but latest on this one is that he is bootlegger.

China. JA3IU/BY will be active for about a month commencing beginning June. 14 s.s.b. and c.w.

5L4A, 3 is being issued to Liberian ops. and 4Z4 will be the call of Israeli Amateurs.

Pakistan: Report to hand which says that the AP Govt. is restoring Ham licences.

VE1XPO is the call of the Canadian Expo 1967.

Nauru Bob W4CHA, who was planning operation from here, will not attempt the trip until next year.

FP8DD. 14204, 2315z. QSL WB2RSW.

Lebanon: OD5LX 14187, 0300z; OD5BA 14236, 0300z.

Afghanistan: YA1FV 14206, 0300z; YA1DAN 14175, 0300z. QSL KP4CL.

Sp. Morocco: EA8AZ 14250, 0800z. Has wobbly s.s.b. rig.

Yemen 4W1L 14220, 0545z.

Monaco: VS9APV will operate as 3A and later as PX. Keep listening 14 s.s.b.

Brunei: 9M6MG and 9M6JP are planning activity from here using calls VS5OQ and VS5DX. They will transmit on 14150 and listen on 14200.

Liechenstein. HB0LL 14198. QSL WA4VQV.

Balearic Is. EA8AR active during June and possibly later. QSL DL7FT.

Mauritius. VQ9CC 14030, 1100z, QSL W1BTW. VQ8CA 14182, same time.

Sth. Orkneys: VP8JD 21043, 1750z. QSL CX2AM.

Malagasy: 5R8AS 21070, 1400z.

Bassas das India Is.: A short stint is coming up from this one. No call known as yet. QSL W4VPD.

Cyprus: ZC4CI 14225, 0330z plus several more on all bands. (Courtesy LIDXA)

Sikkim: AC3PT is active 21030, 1100z.

Sao Thome: CR5SP QRV s.s.b. 14195, 1600z. Also CR5CA on c.w. 21065 2045z.

Egypt: SU1AR 14016, 2200z. (Late news)

Fr. Guiana: FY7YG 21376, 2030z. QSL W2CTN. (By courtesy, J. Coote, G3UGT, Ed. "Air Wireless")

New Hebrides: Dave Laing, ex VK4, is now reported active on 2680 a.m. after 0700z. Also 20 c.w from 0500z. FU8AG also active.

Mauritius: VQ8AX 14215, 1200z. Also one or two others.

Egypt: SU1AR 14017, 0430z, also 2100z.

Kure Is.: KH6EDY 14233, 0630z.

ACTIVITIES

Dud VK4MY has not been very active and using for the time being a home-brew rx which restricts him to 14 Mc. Nevertheless, he worked these nice ones 20 s.s.b.: UA1CK/JT1, IS1VAZ 14155 0645, SP7HX 14100 0650, LA8TJ 14115 0619, PA0HBO 14120 0650, G16TK 14170 0500, VK2AVA/LH 14180 0600, etc. On c.w., CP5AA 14021 0640, PA0MUG 14030 2030, GW8TW 14028 0650, DK1CU 14005 0700, DK1HP 14064 0600, plus other Europeans. Some that got away were GI3OLJ, TU2AY, FB8YY, KS-6CL, KG6NAA, EA9AZ, UN1CF, EL2D, FO8BU, 8R1S, K6KA/YA, SW1AA.

Jim VK4ZO, from Nth. Qld., reports 14 Mc. open in the mornings to Europe [illegible]. He logged the following on c.w.: DL6BD, FA2AG, UC2AL, HA3CI, UI8KKT, UB8DV, ZS3AZ, KL7FSA, UA9CZ, G3CCD and ZP9OG at 2115z.

Reg VK4VX, who has had a heyday on 10 mx these past weeks, reports these worked: CR7DS, DU1FH, DL9QF, DJ2BW, EP2GI, EI6AS, FA1I, G3NMH, I1PQL, HP1JC, HB0LL, HK4DF, HL9DQ, HB9ZC, KV4EU, KP4BTM, KR6TAB, KZ5IK, KH6FRO, KH6QW, KX6DC, KL7DTH, KP6CZ, OE1HKW, OD5RX, OH6WI, OA4EM, PJ3CR, SM5BPJ, UG6ACR, UA3AYN, UC2AA, UH8AZ, UR2KK, VE1PV, VP8HZ, VQ8AX, VP2KR, VS6FZ, VK9GN, XW8AZ, XE1YG, YV1FV, ZP5OG, ZX1BR, ZS1JP, ZS-1ND, ZS3HJ, ZS4OI, ZS5KF, ZS6ARE, 3C2PJZ/SU, 5R8AS, 9M2PO, 9V1FF and more. (A mighty effort OM.—AL)

Chas VK4UC, who now reports the state of his art as DXCC 178/141, WAS 50/40, WAZ 40/30, says the bands have quietened down somewhat. He lists the following on 20 mx c.w. VO1AW, G8US, SP6CK, F9LX, CT1VB, UC2DN, ZD3I (Yasme), FM7WO, FK8BJ, YU-3EYZ, CT3AS, 5N2ABD, 9G1HM, HM5CL. All from 0600 to 1200z. On s.s.b., UA1CK/JT1, VK2AVA, CR4BC.

For those chasing W.A.S., the state of Delaware is always difficult. Chas reports these from that state on now: W3IYE, W3DRD, K3KGF, K3NHL, K3QVV.

Dave VK3QV, who covers the m.u.f. on ten consistently, logged on s.s.b.: DJ8SG, FW8RC, VQ8CG, XE1DDP, ZE1JJ, ZS3AF, ZS6KS and all W areas, plus JA. Heard were GI8IVJ, EP2GI and OE3BSL. Dave says the band is now in a state of hibernation till spring.

Ken VK3TL, who admits to finding [illegible] last few hard to snare, did add a couple [illegible] to the score this month and they are contained in this nice list. 14 Mc.: CR4BC, CR5BX, EA-8BQ, EL2S, FW8RC, HB0GJ, IS1RUA, VO1FB, VQ8CA, ZD3I, ZD8RD, ZS6L (Lesothe), 2B1BD, 3C1UA, (P.E. Is.), 8R1S (Guyana), 9G1BF, 9G1TV, etc. QSLs received, HR1CF, HC1DX, GM2HCZ, HI8LC, IS1FOL, IS1TDW, VP8BK, T19JIC, 6Y5GG, EA8BH, CN8BV, OX3BX.

Geoff VK3AMK says that conditions have fallen off on 28 and 21 Mc. He says many of the signals now have strong Auroral flutter due to the increasing sunspot activity. He lists these goodies all on s.s.b. 7 Mc. G3AOO at good strength around 0630z. 14 Mc.: CE1IU, CN8CB, EI4R, EI9V, GW4NZ, HB0AFM, HP1JC, HI-8XAL, IS1RUA, LX1WR, PJ2MI, PY2DVH, UC2AA, VP1LP, VP2SY, VP8RG, ZD3I, ZK1AR, 7Q7LZ and more. On 15 mx: G3BID/M, GC-3FKW, GM3AT, W0ICJ/KM6, SV0WV, SV0WX. Ten mx: DL1EC, G3IIY, FO8BS, YV4IQ, and 9Q5EP. (Good four-band coverage, Geoff.)

Don VK3AKN writes to say that 10 mx has been better than predicted, working some 200 stations during last January and February alone. Mostly Europeans, but with a sprinkling of Africans, Js and Ws. Notched up these last few weeks were the following: ST2BA (Box 244, Pt. Sudan), K3IAT, I1HCJ, OK1AFV, SM5BNX, DL2JO, UM8AP, DJ8CZ, VK6MA, UW4IB, YO3AID, YO3JE, YO3QO, CT1LN, F1YR, UP2NX, DL4SA, UA9MR, WB6JPQ/MM (Californian Bear), 9J2GJ, UA8YZ, UA9ES, LZ1YW, UT5GP, 5Z4SSQ, GW3TIW, ZS6MM, ZS6JK, ON4CK, UD6KBD, G5RI, UL7AIN, XE2AAG, OE4FS, UB5ES, LA7NG, F9HY, HL-9KB, ZE1CB, OH6RC, KH6FQR, KV4CI, SV-0WFF and more. All on 28 c.w. (Nice big list OM. Some more pse?)

SOME QTHs

EP2GI—G13HXV, 48 Erinvale Ave., Finaghy, Belfast 10.

9U5ID—D.O.T.M.F.O.B. 7388, Newark, N.J., U.S.A.

5N2AAV—Marinus Verhoeven, P.O.B. 14, Minna, Nigeria.

4W1G—HB9NQ, Rene Schelling, Romerstrasse 28, Aarau A.G., Switzerland.

ZF1GC—VE4DO, Dr. James Hendry, 103 Clark Dr., Brandon, Manitoba, Canada.

VP2VV—KV4CK, P.O.B. 2128, St. Thomas, Virgin Is.

FO8BS—P.O.B. 376, Papeete, Tahiti.

KS6BZ—L. Rector, C/o. Dept. of Education, Pago Pago, American Samoa.

KW6EJ—W2CTN (VK3QV)

VP6BP—W2CTN. (VK3QV)

FM7WO—Box 578, Ft. de France. (VK4UC)

9G1HM—Box 2185, Accra. (VK4UC)

AWARDS

Benelux: This nice award is issued for confirmed contacts with Belgian, Dutch and Luxembourg stations as follows:

DX applicants: four QSOs each with the first two countries and two QSOs with the last named. Send a certified list of stations worked with 7 I.R.C. to Award Manager ON4NM, P.O. Box 381, Antwerp 1, Belgium. Any mode, any band. No endorsements.

SWL

Sub-Editor: D. GRANTLEY, WIA-L2022
P.O. Box 222, Penrith, N.S.W.

In the column of the May issue of "Amateur Radio" I briefly outlined the "doings" of the short wave listener. The response to this has been such that we will continue this month, and elaborate a little on the subject of receivers, followed in a later issue by some data on antenna erection.

The choice of a receiver is governed by the field of operation which the S.w.l. chooses and the amount of money he has available. If he is intending to concentrate on the Ham bands alone, there are many commercial receivers available for this purpose, including a number of the Japanese receivers which are available in this country. I have used only one of these and it performed quite adequately on frequencies up to 20 metres, however performance dropped away on 15 and 10, which is to be expected. I was using this receiver for the A.D. Contest in 1963 when band conditions were well below their present level. If you intend to listen to anything and everything, a general coverage receiver is necessary, in fact there are general coverage receivers available which have bandspread on the Amateur bands. This of course is the ideal set-up for listening.

It is well to keep in mind that the receiver must be extremely sensitive in order to pick up and amplify the tiny portion of r.f. which the antenna feeds to it, and that any shortcuts in its construction will naturally impair the result. But to get back to the starting point, let's presume that the would-be S.w.l. has $50 to spend on his first receiver and wants to listen to anything he can hear, with emphasis on the Amateur bands. If he is an experienced telegraphist he will be able to listen to Morse signals up to maybe 25 w.p.m. and these can be heard in abundance on a home-made regenerative or t.r.f. receiver. However, once again we must presume that our listener to be is not experienced and will have to learn to follow simple telephony before he graduates to operating single sideband. As there is very little s.s.m. (normal speech) on the DX (long distance) bands, he will have to listen to 160 if he is fortunate enough to hear a signal, otherwise 80 or 40 metres. Therefore his first need is a receiver capable of good reception on these bands and up to say 10 Mc. This gives him general coverage up to a little higher than the 40 metre Amateur band and takes in many of the commercial stations and local point to point communications.

What must this receiver have? Firstly, it must have a stable beat frequency oscillator, and without going into theory, this is necessary to provide a means of making single sideband transmissions audible, as well as providing a readable note for Morse signals. I emphasise the need for a stable b.f.o. as the slightest shift in this circuit will at once detune the signal. The r.f. amplifier too is a crucial part of the circuit, once again I will leave the theory to the Youth Radio Scheme and speak only of results.

With no radio frequency stage you will hear images or repeats of any given signal in more than one place, the addition of the r.f. stage overcomes this by amplifying the basic signal and rejecting the image, whilst a second r.f. stage really puts the receiver in business. So, we must have at least one r.f. stage to give the set the necessary "sensitivity" to lift the weak signals. Then as well as all this we must have a "selective" receiver, that is one which has the ability to eliminate unwanted signals and this can become quite an expensive addition. But in these days of crowded bands it is essential that we have some device to perform this function, the said device is called a filter, and can be of the mechanical type or the older type using a quartz crystal. The simplest device however is a Q multiplier and details of this can be found in a handbook such as the A.R.R.L. Handbook, or the Novice and Technician Handbook, to name two of the regular ones.

So now we have a receiver which has stability, selectivity and sensitivity. It tunes between approximately 3 and 10 Mc. and is capable of receiving any type of transmission. This is a basic set and if a good choice is made, then you will have the basis for future operation and extension when you move into the DX bands on 20, 15 and 10 metres.

Now for the actual choice of a receiver. Watch the columns of this magazine, or even advertise in it. Listen to your Divisional broadcast and look in your W.I.A. Divisional Bulletin, or contact other members of the various S.w.l. Groups, thus you will be able to buy a receiver more to your need and far cheaper than other sources.

Of the various receivers on the market at the present time, I had the use of several types of these wartime receivers and most of them are quite adequate for a beginner, and for further use on the DX bands when he has more experience. One of the most famous of these is the AR7. This set has two r.f. stages, an in-built crystal filter, power supply and all the features of a first class communications receiver, but one fault is that it sometimes lacks stability. Frequency range is from below the broadcast band to 25 Mc. This covers up to 15 metres, but at this frequency they tend towards instability. However for a basic set they are quite okay. The same applies to the AMR300 and the HRO. The BC342/348 series are also excellent if you can get an unmodified model, and the SX28, although old, will still match the best of them. Then we had the Super-pro, another excellent job, as was the CR100. Probably the best of the lot would be the AR88 series, and these even now sell at a price well above any of the others.

The types named up to here are all general coverage communications receivers which were the best of their day and which can be obtained fairly reasonably these days. There are others which served a lesser duty, for example the No. 4, with its cast alloy chassis and most stable b.f.o. This set was quite good for its purpose and would be ideal for a beginner who planned to extend its range with converters, a subject which we will cover later. In this category comes the No. 19 set, one of which I used with extremely good results when I first joined the VK2 S.w.l. Group many years ago.

There is little more I can add at this point. As space permits I will continue this series, but in the meantime I would like to hear any comments from users of current commercial gear, giving their opinions and suggestions which I can pass on to the newcomers who frequently write in for information on this subject.

DIVISIONAL NOTES

VK3 Group: The construction night which formed the May meeting was attended by only half a dozen members, which to say the least was disappointing. R. Girdo was elected Vice-President and Liaison Officer. All QSL cards received by the QSL Officer have been despatched to their owners.

VK2 News: A recent development is the change to be made to the Victorian Group magazine "Zero-Beat". It has been decided to combine the Y.R.S. and S.w.l. notes in the one magazine, the circulation and income will go up, the S.w.l. Group is brought to the notice of the Y.R.S. members. It may be eventually possible to increase the number of pages in each copy, or even produce the magazine monthly. Recent correspondence from the Hamilton College indicates that possibly six of the boys will join the VK3 S.w.l. Group, a nice increase to our country membership. The Group would like to see a better attendance at the meetings. Don't worry about the cold rooms, for plenty of heating is available and the lectures are interesting.

AROUND THE SHACKS

Alan Raftery, L5065, has QSLs from UB-5ARTEK, HP1JC, XW8AX, XW8AZ, G2AKQ, OH5NW, JA4BJO and IICAM. Ted Gregory, ex VS6EC is at R.A.A.F. HQ. Penrith, and I have made his acquaintance. His XYL is Inge VK6OV.

Such is life. Last month I was abusing everybody for not writing. Eric L3048 is very happy about the number of VK3 chaps whose cards are passing through the Bureau, but is not doing too badly himself either with a score of 300 countries in 40 Zones. Inward cards DM2AQF, DM3WSO, DL4SA, F8TT/FC, G3IAR, G3KSH, HB9AFI, SP2KAJ, TA2AC, VE6WT, VK3AOY, VS9ARV, VS9KRV, VS9MB, YU2KYZ, 7X0AR, VK3AX/M, G3UJB/MA, G3UJB/MM.

Our overseas correspondent, Art Borreidale, now transfers from W to EA, and hopes to do active listening from there, whilst John Simons who has been providing some interesting news on v.h.f. doings in G land, now moves to another country. That winds it up for this month chaps, 73 for now, and don't forget the R.D. Contest. Don L2022.

☆

YOUTH RADIO SCHEME

It is with pleasure that we announce that Mr. Keith Howard, VK2AKX, President of the Westlakes Radio Club, will be taking over the duties of Federal Co-ordinator from Mr. Rex Black, VK2YA. Keith has been a very active promoter of Amateur Radio for many years and devotes many hours each week to the club including Saturdays for Y.R.S. Keith is also a teacher by profession and is an excellent and logical successor to Rex. Our best wishes to you, Keith—and for the future of the Y.R.S.

The first Y.R.S. Conference was held over the week-end of June 3 and 4 with a general meeting of officers and club leaders, at Sydney Grammar School on the first day. On the second day, the W.I.A. headquarters at Crows Nest was open for a get-together of those interested in the Postal Groups. Roger VK1RD, Postal Group Supervisor, was there to meet as many people as possible.

Rex Black, VK2YA, has written from England to say that he will be back in Australia and at work some time around August 1. Rex had a bit of news about various youth activities in England. Y.R.S'ers should feel very fortunate in being able to use radio gear under supervision of a licensed Amateur for in England this is absolutely illegal. G3TGS is the call sign of the Scout Radio Club operating from Baden-Powell House in Kensington. It appears that the revised training methods of English Scouting will include some attention to Amateur Radio.

Speaking of Scouting, do not forget that the Jamboree-on-the-Air takes place August 6 and 7. So if you know of a Ham in your district do not hesitate to approach him. A little preliminary instruction on the use of the mike, what to say, etc., helps keep mike shyness at bay and leaves a good impression on the other half of the QSO party.

Allan Nutley, of the Meadowbank High School Radio Club, was formally presented with the O.T.C. book prize for gaining 88% in the Elementary Certificate at the last meeting of the Wireless Institute.

John Flynn, of Canterbury Scout Radio Club, advises that his club is following a construction programme this year which will give the boys very valuable experience.

There have been several more successes for the Elementary Certificate. C. Zvirblis, of Roger Davis' P.G., gained 88% and, therefore, will be eligible for the O.T.C. prize.

Don't forget to send me your news by the last Wednesday of each month. The address is Mrs. M. Swinton, VK2AXS, P.O. Box 1, Kulnura, N.S.W. Best 73, Mona.

VHF

Sub-Editor CYRIL MAUDE, VK3ZCK
2 Clarendon St., Avondale Heights, 3034, Vic.

Week activities over the past month seem rather varied, ranging from plenty of DX to a state of complete inactivity

V.H.F. CONTESTS IN AUCKLAND, N.Z.

Two metre contest, Sunday, August 20, from 1500 to 2200 hours N.Z.S.T. This contest is divided into four periods, each of one hour. U.h.f. Contest, 432 Mc. and above to be held on Sunday, November 19, from 1500 to 2200 hours N.Z.S.T. and will be in three periods, each of one-hour duration.

The Auckland V.h.f. Group will be holding a V.h.f. Field Day on Saturday and Sunday, 9th and 10th December. Hours of operation are, Saturday 1600-2200 hours, Sunday 0600-1200 hours N.Z.S.T.

NEW SOUTH WALES

52 Mc. Activity on the lower end of the band is mainly confined to the week-end, peaking on Sunday morning. A dozen or more stations are now quite active on the 53.888 Mc. a.m. net. The activity is centred in the Blue Mountains with good signals being received in Sydney. The new 53.95 Mc. f.m. net has got away to a slow start owing to a shortage of "low-band" transceivers, but good coverage is reported by the stations on this net. The monthly 6 mx fox hunt for May was held on Sunday, 14th, with VK2ZVL acting as the fox. A small attendance was the result of inclement looking weather, although little rain was experienced. Place getters were VKs 2ZAU, 2ZPJ and 2ZEV. Interstate and country visitors are always welcome at our monthly 6 and 2 mx fox hunts.

144 Mc.: Over the past couple of weeks the activity on this band seems to have hit an all time low. Perhaps this may be attributed to the eager gathering on the frequency of the slow Morse broadcasts, as after these sessions more stations put in an appearance. Crossband contacts 144 to 432 Mc seem to be on the increase and plans may be heard of bigger and better u.h.f. signals to come.

432 Mc.: On Saturday, May 13, a meeting was held at Wireless Centre of 432 Mc. enthusiasts. There were 13 in attendance and it was decided to form a 432 Mc. Moonbounce team whose purpose will be to conduct Moonbounce experiments and generally endeavour to increase the interest in 432 Mc. operation. Further details may be obtained from Gordon 2ZXD who was elected chairman at the meeting. Progress of this team will also be given, from time to time, on the Sunday broadcasts.

The new V.h.f. and T.v. Group Committee are anxious to hear from country members who either require assistance in v.h.f. matters or wish to offer constructive criticism of Group activities. At present plans are in hand to extend v.h.f. coverage of country areas during Sunday broadcasts on both 52 and 144 Mc. If you have plans for visiting Sydney in the near future, drop our Secretary, Norm 2ZXC, a line letting him know the dates and frequencies on which you may be working. This information will be made public so that members can be on the lookout for your signals. Information of v.h.f. activities during your proposed visit is also available from the same source.

The May meeting of the V.h.f. and T.v. Group celebrated the 20th anniversary of the post-war Group and was brightened by the presence of some of the inaugural members. Some very humourous and interesting tales of the early days was related by five of these stalwarts in the form of Horrie 2HL, Roy 2HO, Carlie 2NP, Fred 2ABC and Dave 2AWZ. Unfortunately some of the other early members were unable to attend owing to illness or prior engagements. Thanks chaps for making this meeting something to remember.

Our apologies for the non-appearance of N.S.W. v.h.f. notes in the May issue, these notes were posted on Anzac Day but evidently came to grips with the mechanical monster which delights in devouring important letters. Some re-iteration of points in the missing notes, we hope, will be excused under the circumstances. The April meeting saw a closely contested election of officers and out of fifteen nominations, the following candidates were successful: Peter 2ZPC, Chairman, Tim 2ZTM, Vice-Chairman, Norm 2ZXC, Secretary, Keith 2ZAU, Treasurer, Bob 2ZMM, Broadcast and Publicity, Phil 2ZPI, Contest Liaison.

The V.h.f. and T.v. Group hold their meetings on the first Friday of each month at Wireless Centre, Atchison St., Crows Nest, and visitors are always welcome. Business during the meeting is kept as brief as possible and interesting lectures are the main event of the evening. See you there. 73, Keith 2ZAU

HUNTER BRANCH

52 Mc.: This band has been very quiet, with very little activity on the Saturday and Sunday nets. Two new stations have come on six metres during the month. These are Frank 2ZFX, who uses a two-way ex disposals, and is putting out a very fine signal and is testing out a high power final, and Henry 2ZGK, of "Dora Creek".

144 Mc.: This band has been in fair shape during the past month and some good openings to Sydney have been noticed. QSB has played havoc with the signals some evenings. Dave 2ZFR has been busy with the local Shire Council getting their Civil Defence radio gear going.

Kevin 2ZKW is still doing well with the V.M.C.A. Radio Club in Maitland with the prospects of a second YL member. 73, Mac 2ZMO.

VICTORIA

Six metres has been quite active although most of this has been on the nets, both a.m. and f.m. There have been a couple of openings, the biggest being on 26/5/67.

Two Metres. This band has not been too active but it is not bad enough to call dead. There have been a couple of minor openings but nothing of note. The fox hunts and scrambles held on this band are still very popular, even though the evenings are getting cold. The fox hunts are held on the fourth Wednesday of each month at 2000 hrs. E.A.S.T., and the scrambles on the second Sunday at 2045 hrs. E.A.S.T. Interstate visitors are welcome to participate in these events.

V.h.f. Group Meeting: The May meeting of the Group, held on the 17th of May, saw the attendance of about sixty members and visitors who heard Alan 3AE, of the Department of Civil Aviation, speak about the communications systems of the Department. Alan used slides and tapes to assist the presentation. Some tapes were made of communications made between Australia and the U.S.A. and a Qantas plane flying across the Pacific. The noticeable point was that the frequencies used were very close to two metres and were relayed via the ABS2 satellite which is orbiting over the Pacific Ocean. The satellite is over the equator at 151 degrees west at an altitude of 22,300 miles.

The V.h.f. Group has started a v.h.f. converter project and prototype models are now being tested. More news of these will be given in future issues of "A.R." 73, Cyril 3ZCK.

EASTERN ZONE

6 Metres: On Sunday 28/5/67, between 1300 and 1600, we had a very good opening to VK5, VK4 and VK2, with such stations as 5ZLP, 4NG, 4ZFR, 4ZDK and 2ZFB. Also heard some ZL1s and ZL t.v., and Port Pirie Channel 1. The opening was observed after noticing short skip on 28 Mc. with 5HP working 2AXB and ZLs on this band.

2 Metres. The f.m. net is very active in the Zone. On Sunday 7/5/67 George 3ZCG heard the VK5 beacon peaking S8-9 QSBing to 54. The opening began late at night after 1030 p.m. when t.v. ch. 9 and 10 Adelaide caused local t.v.i. After GLV10 closed, Ch. 10 Adelaide was watched with very little snow in Morwell and Mt. Tassie and was also observed by Art 3ZAT who works at Ch. 4 and 10.

The next day, there was no sign of the beacon but that night George worked Alan 2ZEO at Deniliquin and David 3ZKU at Kattunga. Alan stated that he too had heard the beacon and after calling his head off, managed to work 5ZKR at Mt. Gambier and later heard 7ZAE.

Two a.m. activity in Gippsland is just fair with most activity on Friday and Sunday evenings. As yet no signals have been heard at this QTH from the VK6CR beacon. 73, George 3ZCG.

QUEENSLAND

The monthly meeting of the Brisbane V.h.f. Group was held on Friday, 19th May. Our former President, Roy 4ZRM, resigned at the meeting and George 4ZMG was elected our new President. New face at the meeting was Peter 4ZPG. Another Peter, 4ZPC, brought along the start of a transistorised 5 Mc. s.s.b. exciter. Speaking on s.s.b., Dane 4ZAX has just acquired a Collins v.h.f. s.s.b. transverter and radiates a blockbuster signal on 144 Mc. Newcomer to 144 Mc., Graham 4ZGB, is finding out how sharp 144 Mc. beams are and is lucky in having a rotator. Another newcomer to 144 Mc. is Eddie 4ZWA.

In Brisbane lately has been Eric 3ZEN, an O.T.C. man, working at Bribie Island. In the Brisbane power race this month is Malcolm 4ZEL, doing some work on his 4-125 driver, I mean, final. Royce 4ZRH also has a new final and soon will have it on the air. Roy is also active on 432 Mc. using a 6/40 into stacked 13 element Yagis. 4HD, of Woombye, is thinking of 432 Mc., but I would suggest something a little better than an 815. Suggest he beams Brisbane and talk to the 432 boys on 144 Mc. Speaking of 432, Alan 4AI has given up Amateur t.v. for other things.

Band openings into Brisbane these days are few and far between. 52 Mc. is open sporadically to Victoria and Japan if one really listens. Melbourne ATV0 was recently copied in Maryborough and North Queenslanders are having a ball with the Pacific DX. 73, 4ZMW.

SOUTH AUSTRALIA

Once again the winter months are with us and as expected the VK5 V.h.f. Group has again commenced a hibernation period. However, this year it appears that there are quite a few light sleepers as high activity has been noted at various times, especially of a week-end. Perhaps the prospect of JA activity is maintaining this interest in the bands, but however optimistic we are of this it is considered that August will be the earliest opportunity for the VK5s to avail themselves seriously to scratching the DX out of the noise. Contrary to any other reports previously published, no confirmed contacts between VK5 and JA have been recorded, but scatter signal reports are numerous.

A recent fox hunt on 146 megs. f.m. had the hounds completely bamboozled. Barry 5ZMW won the first hunt, but nobody could locate Jim 5ZGV, the fox, in the second hunt. During this hunt all the cars participating found themselves adjacent to a new housing area complete with vacant allotments. Not a trace of transmitting equipment was to be seen, although an S9 signal appeared to come from one particular vacant block. Eventually frustration reigned supreme until one of the hounds decided to let fly at a surveyor's peg. To everyone's amazement the signal dropped. Investigation of this surveyor's peg revealed a hollowed out section containing a vertical quarter wave dipole, fed via coaxial cable from the transmitter which was conveniently buried in a nearby site. Notwithstanding the time had crept on and no time was available for a third hunt, and Barry 5ZMW was declared the winner on the result of the first hunt. 73, Colin 5ZHJ.

WESTERN AUSTRALIA

Can it be that the winter season has revived the v.h.f. bands? Often the moan is heard that there is not much activity in this neck of the woods, but things seem to be improving. Our Amateur t.v. is on the air with Warren 6WJ/T and Kevin 6ZCB/T both running test signals on 432 Mc. There is a very good article in the May West Australian V.h.f. Bulletin showing how to construct a suitable converter.

A big local do was the Hamfest at Kalgoorlie which catered for everyone, both h.f. and v.h.f., a.m., f.m. and s.s.b. and even those who did not have any gear. Maybe more about this later.

The last scramble went well in the morning but there was some lack of activity in the afternoon.

The boys at Wesley College Radio Club are building up a helix with which they hope to track Australis, that is when it gets aloft.

Oh, yes, s.s.b. in the scramble in the shape of 6TU and with a very nice signal. S.s.b. signals have been spanning the hills and dales from the shack of Max 6ZFM in Bridgetown and received in Perth before and after the Sunday news at 0930.

A.m. phone on six metres is having a revival with more a.m. units becoming available ex commercial use, but how about several channels chaps, if you must use one channel, please don't all talk at once. (Note, try staggering the units by 3 kc., then it's a real mess when everyone talks at once.—Sub-Ed.) 73, Laurie 6ZEA.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the Publishers.

ROSS HULL V.H.F. CONTEST

Editor "A.R.," Dear Sir,

An Amateur perusing the results of the 1966/67 Ross Hull Contest could be forgiven for concluding that the Contest could be discontinued because of apparent lack of participation. However, the Federal Contest Committee cannot be pardoned for allowing "irresponsible sensationalism" to be published as its official report on the Contest.

The F.C.C. begins its report in a gloomy fashion: "Again this year we saw a very poor response to a national contest". The 1965/66 Contest, held during a period of sunspot minima, attracted an entry of approximately 20 logs, whereas the 1966/67 Contest attracted about 40 logs—an increase over the previous year of 100%! How, therefore, is the F.C.C. justified in using the phrase "again this year"?

The F.C.C. report then continues, "When only 0.7% of licenced Australian Amateurs participate in a contest, perhaps it is time to either re-write the entire set of rules or discontinue the contest."

Upon checking the results of the 1966 John Moyle National Field Day Contest, it was found that in this case only 0.7% of all licensed Australian Amateurs submitted logs to the F.C.C. Further, a check on the phone section of the 1966 VK-ZL-Oceania DX Contest produced a participation figure of 0.6%. The F.C.C reports printed with the results of the above two Contests did not mention the possibility of discontinuing them because of the apparent lack of participation. Why, therefore, does the F.C.C. choose to single out the Ross Hull Contest, which they agree has a participation figure of 0.7%?

In recent times, the rules of the Ross Hull Contest have been re-written so that the present Contest is very different to the Ross Hull of a few years ago. But the F.C.C. blatently suggests that the entire set of Contest rules should be re-written again! How can the spirit and tradition of the Contest flourish from year to year if the rules are being continually changed?

The F.C.C. report goes on to say, "It is difficult to understand the apparent lack of interest and apathy on behalf of the other 99.3% who did not enter the Contest." On the contrary, it is not difficult to understand why so few logs are submitted. Because the Contest runs for a month and as the most active stations swap contest numbers nearly every day, the probable results of the Contest are known even before the Contest finishes! If an Amateur knows he has a lower score than someone else, what then is the use of spending hours writing out a contest log when he knows he cannot win?

The F.C.C. should note that in this respect the suggestion that anyone who submits a log with over 100 contacts should be given a certificate, is of merit. Precedent for this has been established by the John Moyle Field Day Contest. Of the 40 entries received by the F.C.C. in 1966, 20 received certificates.

On the question of Ross Hull participation, tthe F.C.C. states that 99.3% of VK Amateurs did not enter. A simple fact can be written in different ways in the Queen's English to imply a different meaning. Thus the text of the above can be re-written in the following manner and still remain true. Writing as VK4 Division winner, I can say that I made and heard many contacts during the Contest. Of all the hundreds of v.h.f. stations who operated during the Contest, not one was heard to refuse to give a contest number when so asked.

Thus I can only draw the simple conclusion that the Ross Hull Contest entertains 100% participation from all Amateurs active on the v.h.f. bands during the Contest. How then can the F.C.C. conclude its report by asking that the Contest be made more popular than it is now? Because of the 100% participation by all Amateurs active during the Contest, the Ross Hull must be the most popular of all the National Contests.

It is now an opportune time to record some of the proposals that have been mentioned in VK4 as a means to improve the Contest:—

1. A certificate to be issued for logs showing more than 100 contest contacts.
2. Delete sections A and C from the Contest.
3. U.h.f. contacts not to be counted in determining the trophy winner
4. Adapt the R.D. Contest idea to this Contest, viz. State V h.f. Groups should compete for a trophy.

Readers of "A.R." have noted the F.C.C. report on the 1966/67 Ross Hull Contest and will by now have read this par. Is the opening remark "irresponsible sensationalism" in fact a fair comment?

—P. J. Lindsay, VK4ZPL.

PREDICTIONS

Editor "A.R.," Dear Sir,

In reply to VK2QL, that forecast was made by Dr King-Hele, Royal Aircraft Establishment, Farnborough, England. I read it in early February, it would have been published in England in early January, so it would have been made some time in December. As it seemed most unlikely to me that it was worth much in view of current sunspot numbers, I am afraid I made no record of where I read it. I think it was in "New Scientist," but I am not sure.

In discussions on the air it is obvious that VK2QL's excellent article on short range month to month predictions was widely read and appreciated. There would be equally great interest in a sequel on long range forecasting, especially if it got to that famous one, "we would not again reach high sunspot activity in the present century": who made it; how did they make it, and is it worth anything more than the paper it is written on?

—A. K. Head, VK3AKZ

THAT LAST 500 Kc.

Editor "A.R.," Dear Sir,

I have been on the air for just on a year, mainly on six metres, and have heard many discussions with regard to the use of the last 500 kc. of six metres and 146-148 Mc.

At the risk of being howled down by the masses, may I add my plea to those of other Amateurs who feel these frequencies are in danger of being lost if not activated and activated soon. In "A.R." we read "Amateur frequencies—use them or lose them"—and once lost can never be regained.

Surely there are Amateurs who would like to start up new nets on these frequencies, even if it means a bit more effort in retuning the rig. I am sure that if there were enough support, the top end of 6 and 2 metres would become active in no time at all.

—David Thomas, VK3ZVT

SIDEBAND

(Continued from Page 13)

The method of generating the sideband at final frequency was used in the Heathkit SB-10 s.s.b generator, so this is not new, but the 7360s appear to be much more stable as balanced modulators than the 12AT7s. Handle your 7360s with care at all times as many people have told me that they can become intermittent with grid-cathode shorts, particularly after rolling off the table. "Wireless World" may be seen in most local libraries, if you are unable to find March and April copies on the bookstalls.

It is quite interesting to note that surplus external anode tubes such as the 4X150A and its later versions such as the 4CX250B, may be used in ceramic "loktal" sockets, if screen supply feed and by-passing to chassis are improvised in the best VK tradition. The blower should not be forgotten—cheap a.c. motored hair-dryers with heaters removed are ideal, and the anode may be boxed in with "red fibre" insulating board to ensure that the air blows through the fins to achieve the best cooling.

Even if you are one who does not approve of phasing type exciters for s.s.b., the above articles may give you some rather different, new ideas.

73 for now, Phil VK5NN.

AMATEUR FREQUENCIES:
USE THEM OR LOSE THEM!

FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

FEDERAL INFORMATION BULLETIN

From J. Battrick, VK5OE, Federal Secretary

QSL Bureau Mr Ray Jones has decided not to give up as Federal QSL Officer, but will continue under a new system suggested by himself.

I.A.R.U Conference is to be held in Montreal from 1st to 6th July, 1967. Any Amateurs who are attending "Expo '67", or for other reasons will be in Canada during that period, are asked to contact the Federal Secretary.

Booklet, "How to Become a Radio Amateur": David Wardlaw, VK3ADW, has agreed to take over this project, and see it to fruition, and will incorporate suggestions from Divisions received last year.

A.R.R.L., President Dennison: Unfortunately, his trip to Australia has been postponed because his wife is ill. W.I.A. has conveyed its regrets and sympathy, hoping for a speedy recovery, and hoping he eventually does come to Australia.

A.R.R.L. re D.X.C.C.: A supplementary statement has been received from A.R.R.L. Awards Commitee re the suspension of W9WNV, Don Miller's membership in D.X.C.C. and credits for various DX-peditions, pending further information.

A further communication from A.R.R.L. announced as follows:

(a) Navassa Island (K1IMP/KC4): D.X.C.C. credits withdrawn.
(b) Laccadive Islands (VU2WNV): D.X.C.C. credits withdrawn.
(c) Aldabra (VQ9AA/A): Suspension lifted.
(d) Des Roches (VQ9AA/D): Suspension is lifted.
(e) Glorioso (FR7ZP): Suspension lifted.
(f) Minerva Reef (1M4A): Suspension lifted.

In regard to items (c), (d), (e) and (f) the D.X.C.C. credits will continue to be granted.

A.R.R.L. Technical Merit Award: The Board of Directors, A.R.R.L., at a recent meeting, unanimously voted to grant the A.R.R.L. Technical Merit Award jointly to Ray Naughton, VK3ATN, and William Conkel, W6DNG, for their outstanding accomplishment in the moonbounce field of v.h.f. signal propagation.

R.D. Contest 1967: Executive has approached the Hon. Allan Fairhall, Minister for Defence, to open this year's Contest. He has gladly agreed, and the VK3 Division will be asked to prepare and distribute the necessary tapes.

S.S.B. Equipment: The P.M.G. Dept. has indicated in a letter of 2/5/67 that it is prepared to accept as meeting the proposed 400 watt p.e.p. output limitation, the Swan Electronics Transcelvers, Types 240 and 500.

DEATH OF FEDERAL AWARDS MANAGER

We regret to announce the passing on 26th May of Alf Kissick, VK3KB. Executive sent floral tributes and condolences.

Alf was a well-loved and well-known DX operator and gave many years of devoted service to W.I.A. and the Amateur Service generally.

A very good friend of Alf's was Bill Hempel, VK3AHO, also a well-known DX'er. Bill has agreed to accept appointment as Federal Awards Manager. His address is Kyvalley, Tongala, Vic.

JAMBOREE ON THE AIR

This year's Jamboree will be held on the week-end of August 5 and 6—which is two months earlier than usual—and the week-end before the R.D. Contest.

The Australian Boy Scouts Association has appointed Branch Organisers in each State who will have all the relevant information, viz.:

New South Wales. D/S/S/L Brian H. Anderson.
Victoria. Mr. Jack Nicholson.
Queensland. H.Q. Commissioner Barry Smith.
South Australia. Field Commissioner Basil Dennis.
Western Australia: H.Q. Commissioner John Leech.
Tasmania. G/S/M Ray Jeffrey
Papua-New Guinea. Mr Peter Whitlock.

This year K7WSJ "World Scout Jamboree" will be set up at Tarragut State Park, Idaho, U.S.A., from August 1 through to August 9.

This year is the Diamond Jubilee year of Scouting, and Scouts from 80 countries will be attending the World Jamboree. Station K7WSJ will be manned continuously during the week-end of August 5 and 6 and will use the following frequencies on phone: 3.850 Mc., 7.290, 14.290, 21.290, 28.590 Mc.

INTERNATIONAL AWARD

"[illegible]"

Each year this award is given by the Institute Internationale delle Communicazioni of Genove, Italia, to Radio Amateurs who distinguish themselves:—

(a) "For offering their activity as an Amateur and their co-operation to highly human and social works" (collaboration with public authority on occasion of public calamity, etc.).

(b) For their contribution with experiments, constructions, etc., to the development of the technology of communications—not a professional one.

Nominations for this award could be sent to Executive for consideration. (It was interesting to note a picture of W. Orr, W6BAI, receiving this award in "QST" or "CQ" recently on behalf of the Project Oscar—it is a highly prized award—any worthy VK activity?)

NUMBER OF LICENSED VK AMATEURS

(From VK3RN, Call Book Compilation)

January—

	VK1	VK2	VK3	VK4	VK5	VK6
Full	67	1303	1114	449	476	363
Limited	14	301	862	106	320	121
Total	81	1604	1616	494	676	363

	VK7	VK8	VK9	VK0	Grand Total
Full	120	15	61	7	3021
Limited	67	6	7	6	1473
Total	189	20	68	7	4395

February—

	VK1	VK2	VK3	VK4	VK5	VK6
Full	67	1326	1115	456	476	368
Limited	14	302	617	170	308	131
Total	81	1697	1632	626	678	396

	VK7	VK8	VK9	VK0	Grand Total
Full	123	16	62	7	3023
Limited	67	5	8	6	1490
Total	185	21	71	7	4384

MEMBERSHIP RETURNS FOR APRIL

	VK2	VK3	VK4	VK5	VK6	VK7
Hon.	—	—			—	—
Life	15	15			6	7
Full	690	613	No		223	143
Assoc.	396	343	Returns		67	33
Others	18	—			—	—
Total	1282	1071			306	330
(Pre. Total)	(1296)	(1001)			(303)	(339)

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NEW SOUTH WALES

COUNCIL NEWS

The N.S.W. Council has again tried out a new idea, that of meeting at 6.30 p.m. The first meeting didn't start until 7.15 p.m. due to the fact that the President and Vice-President both had transport difficulties. Subsequent Council meetings have been started almost on time, but have not concluded much earlier than before, due mainly to the vast amount of accumulated correspondence requiring attention.

SILENT KEY

It is with deep regret that we record the passing of:

VK3KB—Alf Kissick.

An upsurge of interest in Amateur Radio clubs is apparent with the formation of clubs in country centres. Clubs are being formed at Parkes, Muswellbrook and Maitland. Council wishes to remind clubs to send full details to the Division at 14 Atcheson St., Crows Nest. Councillor Henderson is the Country Liaison Officer and Cyril will see that the club gets good publicity on the 2WI broadcasts and in the Bulletin, this being in order to inform Amateurs in the local area of the club which they may care to join and support. Should the club wish to embark in training or entering for juniors, then clubs are recommended to the Youth Radio Scheme conducted by the W.I.A. in N.S.W. If this is the case, then Councillor Dave Jeans will assist in the Y.R.S. liaison area.

Council is very anxious to assist and encourage clubs to be formed in country areas, both to foster the interest in Amateur Radio and as a by-product to provide a station for future W.I.C.E.N. use should it ever be required.

MAY GENERAL MEETING

Despite the lack of railway transport on this occasion the meeting was well attended and was opened by the President Keith Finney. Following the usual formalities, the President reported to the meeting on the appointment of a Secretary. The President advised that Council had passed a motion that a paid Secretary be engaged. Discussion ensued on this matter and resulted in a motion that the appointment be deferred for further discussion at the June meeting. The President then stated that this motion was in effect a vote of no confidence in himself or Council; and then said that he was resigning and left the meeting. Vice-President Bill Lewis then took the chair and suspended business. Then a series of slides taken in Vietnam by VK2AIF/XV5 were shown. Following the slides a film was shown on the manufacture of valves and transistors. An intermittent fault in the speaker lead didn't assist the screening.

Following the film, Bill then re-opened the meeting for business. After a short discussion, a motion was moved and passed to the effect that Keith reconsider his decision to resign. The meeting then concluded. Because of the business involved, it was not possible to admit new members at the meeting so the applicants will now be presented to the June meeting. No additional appointments were announced and the Hon. Secretary, Mrs. Gerdes, is continuing on until the question of the Secretary has been resolved.

Subsequent to the general meeting an informal meeting was held between the President and Councillors on the 29th May. At this meeting Keith agreed to carry on as President, and the Council decided to make the general meeting in June a Special Meeting and in view of the events at the May meeting it was decided to notify all members by mailed notice of three items to be presented to the meeting for discussion. The three items being:

1. To hear a report of the Auditor on the financial ability of the Division to employ a Secretary.
2. To hear a statement on the legal obligations and powers of Council.
3. To consider a motion of confidence in Council.

Your correspondent was not able to obtain an up-to-date statement on the situation for "A.R." as the President is overseas for several weeks and does not expect to return before the June Special General Meeting which will be held on 23rd June as previously announced.

ILLAWARRA BRANCH

The members of the Illawarra Section have again been holding meetings in Wollongong, and in reply to a letter to Council, two Councillors, Messrs. Campbell and Henderson, went to Wollongong and met the Amateurs concerned and amongst many things discussed the procedures for the Section becoming a Branch. Subsequent to further meetings of the Section, an application was made to Council for approval for the Section to become a Branch. Council unanimously approved the request so that the Division now has an Illawarra Branch.

Amateurs in the Wollongong C.D. area are eligible to be members and are asked to assist the new Branch by attending meetings and helping out with the many jobs involved in getting the new Branch firmly established. It

is hoped to be able to publish a list of office-bearers and the details of meetings, etc., next month. 73, Stan VK2ZRD.

HUNTER BRANCH

What a wonderful thing is bright dip! You don't know what this is? Then you couldn't have been at the May meeting of the Branch when Lionel 2ZLD gave his excellent lecture, "Professionalising your Amateur Equipment". Lionel went to great lengths to describe the various methods of preparing metalwork for chassis and panel construction. One of the preparations needed for the cleaning of steel sheets appears to be a very violent liquid called bright dip which contains equal quantities of just about everything excluding pure flourine. It is just the shot for de-rusting panels, etching aluminium and boring holes in the sides of battleships or whatever. In addition to all this, Lionel gave plenty of information about dressing up the home built gear to look just like Mr. Collins makes.

The attendance at the meeting was a record, there being fifty present. President Frank 2ZFX expressed his pleasure at the large attendance and issued an invitation to everyone in the room to bring along a friend to the next and subsequent meetings. Despite this kind invitation, the attendance at the June meeting was not as great, but since the weather is a determining factor at this time of year, this is perhaps understandable.

At the June meeting, Tony 2ZCT described and demonstrated his now famous 5-transistor transmitter, built on a printed circuit board. This little unit is a masterpiece of design and construction and just how Tony manages to coax ½ watt out of it is a mystery, but he does! The transistors employed are all the silicon planar 2N3564 types. It seems that these will work well from audio to about 750 megs. and Branch members are able to buy them at meetings at a very reasonable cost. To support his talk, Tony issued all present with three sheets of circuit diagrams outlining not only the transmitter but also other applications of the 2N3564. This meeting was another of those "shouldn't be missed" events, but, should it have been impossible for you to get there you can still have the notes and diagrams on application to Tony at his Call Book address. Please enclose a stamped addressed envelope for the reply.

Both the lectures were accompanied by films of interest to Amateurs and those shown in May and June were "Printed Circuit Story" and "On Solder". It has become policy to show a film at the commencement of each meeting and an interesting programme has been arranged for the remaining months of 1967.

Perhaps you think you're a good c.w. operator. Maybe your faith in yourself would have been shattered if you had seen a demonstration given by visiting Japanese Amateur Nubuo JA3API who is well known for his mobile marine activities off the coast. Nubuo came to visit several Newcastle Amateurs on 18th May and, while in the shack of one well known Novocastrian he asked if it were commonplace to work Ws on 40. The WKN answered that it was not so; Nubuo proceeded to call CQ and immediately worked a Texan. The others in the shack could hear a good deal of noise but a signal—no chance. Nevertheless, experience won through, as it generally does, and JA3API portable VK2 made it with ease. So, you see, the WKN will now receive his first W QSL!

Over in the U.S.A., Jim 2AHT is having a great time and working all and sundry from the various QTHs that he visits. Paddy 2AXU is reported to have his tx back in working condition again and soon he will be looking for contacts. Kev 2ZKW, having used f.m. for the first time while on the trip to the Y.R.S. Conference with his two wild mates, now says that he is anxious to get going on this mode as quickly as possible. He didn't realise how simple v.h.f. operation can be.

The W.I.C.E.N. helped out with a genuine emergency on the way back from Sydney on that night. The car with 146 gear came upon a bad accident which had just occurred and by means of a relay to David 2BSC, the ambulance was summoned to take the casualties to hospital. Those who were not injured showed some degree of amazement at the speed of the operation.

Preparations are well in hand for the Field Day which will be held on Sunday, 15th October, in Bolton Point Park. The details of this will be given next month but before that there is the next meeting. If this arrives in time, please note that Friday, July 7, is the date to remember for Gordon 2ZSG and his talk on Command receivers. In August the meeting is on 4th and both will be held in room 6 of the Clegg Building, Newcastle Technical College, commencing at 8 p.m. Why not come along and bring a friend? See you there, 73 2AKX.

BLUE MOUNTAINS BRANCH

The May meeting of the Blue Mountains Branch was held at the Lawson Council Chambers on Friday the 19th. 15 members were present. After several changes of vice-presidents, the president himself arrived and things eventually got swinging. The Scout Jamboree on the Air was discussed and the Upper Mountains area is all set, but the Lower Mountains area has yet to be organised.

After general business was disposed of, the president of the V.h.f. Group, Peter 2ZPC, gave a short talk on some of the v.h.f. activity and some types of v.h.f. taxiphones which are now available. He then departed in a cloud of dust for the Orange Radio Club meeting.

The meeting decided not to proceed with the purchase of 146 Mc. f.m. equipment as the club is already committed for 2 mx a.m. equipment.

The remainder of the evening was spent in constructional activity, the object being to get the h.f. transmitter going.

The previous meeting saw the loss of one of our oldest members, Ron 2ADA. Apart from being the publicity officer, Ron was also the chief stirrer. He is soon to be a VK3. 73, 2TM.

CENTRAL COAST (RADIO CLUB) BRANCH

The May general meeting of the club was held on Friday 19th and was followed by a most interesting lecture by Barry 2ZAH. The subject for the lecture was the outline of a number of methods of variable frequency control by crystal synthesising. It proved to be of great interest since the methods described had a very wide application. The appreciation of the meeting goes to Barry for travelling from Sydney to give a fine lecture.

The club outing to Munmorah Power Station, that was to have been held on 4th June, had to be postponed, but it is hoped that a new date can be arranged as soon as possible.

The next meeting which will be held on 18th June should prove to be another most interesting night and should not be missed.

Mr Ronald, of Fairchild Semiconductors, is to give a lecture, supported by a 45-minute film, on the manufacture and application of silicon planar transistors. 73, Bill 2TS.

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VICTORIA

OFFICE-BEARERS FOR 1967-68

President: Ken Pincott, VK3AFJ.
Vice-Presidents: Michael Owen, VK3ZEO; Jack Taylor, VK3ZJF.
Secretary: Keith Roget, VK3YQ.
Assistant Secretary: Alf. Chandler, VK3LC.
Treasurer: William Faul, VK3AOZ, ex-officio member
Councillors: John Beckett, VK3FE, Cyril Maude, VK3ZCK; John Spicer, VK-3ZEL; Dean Blackman, VK3ZPS; Ken Seddon, VK3ACS.
Federal Councillor: Michael Owen, VK3ZEO.

Other appointments are as follows:—
Librarian: Bill Roper, VK3ARZ.
Inst. Librarian: Cyril Maude, VK3ZCK.
Editor "A.R.": Ken Pincott, VK3AFJ.
QSL Officers: Inwards, E. Trebilcock; Outwards, Ivor Stafford, VK3XB.
Class Instructors: Theory, C. Pickering, VK-3ATP, and M. Tarrant, VK3LF; Morse, J. Lancaster, VK3JL; Corres., K. Seddon, VK3ACS, and D. Pinson.
Transmitting Officer: Peter Linden, VK3BX.
Disposal Committee: L. Fowler, VK3ZGF; J. Stewart (Secretary), VK3AS; J. Battrick, VK3OR; J. Kelleher, VK3AIJ; J. Spicer, VK3ZEL; T. Cuthbertson, VK3ZIQ.
Broadcast Committee: J. Wilson, VK3LM, P. Downey, VK3APD; L. Poynter, VK-3ZGP; R. Fisher, VK3OM; W. Roper, VK3ARZ, C. Edmonds, VK3AEE.
W.I.C.E.N. Co-ordinators: M. Owen, VK3ZEO; J. Battrick, VK3OR.
W.I.C.E.N. Controller: H. Hepburn, VK3AFQ.
W.I.C.E.N. Technical Officer: J. Spicer, VK-3ZEL.
T.v.i. Committee: J. Taylor, VK3ZJF; W. Rice, VK3APB; G. Farthing, VK3AFR.
Y.R.S. Liaison Officer: D. Blackman, VK3ZPS.
Programme Committee: K. Roget, VK3YQ; K. Seddon, VK3ACS.
Publicity Officer: C. Maude, VK3ZCK.

The Divisional Council is planning another drive to increase the membership of full and associate members. If any readers of "A.R." know of any Amateurs or S.w.l's who are not members of the Division they are asked to make an effort and introduce to them the advantages of membership.

I.T.U. Fund. The Victorian Division is still lacking donations to bring its quota up to the mark, so what about it chaps, send in those odd cents. If every licensed Amateur in Victoria sent in TEN CENTS we could almost fill our I.T.U. quota. 73, Cyril 3ZCK.

EASTERN ZONE

We hope that everyone who was able to get along to the Eastern Zone Convention at Maffra enjoyed themselves and that all arrived back home safely. Reg 3AWV is back from his short trip to VK9 Port Moresby and VK4.

S.s.b. is becoming quite popular now in the Zone, one of the latest stations to come back on the air after a long spell is Martin 3AMV, of Warragul, with a very clean s.s.b. signal. His mustn't be confused with our other Martin at Bairnsdale, who is also very active using s.s.b., as his ex-call was 3ANV, very similar to Martin of Warragul. Martin of Bairnsdale has a new call—3JW.

Don't forget the 80 mx Zone hook-up at 8 p.m. on Friday evenings where we can keep in touch with one another and arrange Zone outings and contests or field days for the warmer months ahead.

146 Mc. f.m. channel A is very active now in the Gippsland area, sometimes at weekends with four conversations taking place at the same time. Friday evening is usually quite active also. We would like all of our Zone members to have a f.m. set either in their shack or car, so should you seek one or want further details, just ring George 3ZCG at Morwell 4-3963.

Harry 3ZX has moved into Traralgon and is active on Ch. A. George 3AOD and Harry 3ZWH are now both active on Ch. A with good signals. George has just built a new shack including a battery room, and a high steel self-supporting tower with a cubical quad and 2 mx beams on top. He is now fitting out the shack and building up ten metre gear. Max, who lives at Traralgon and works up at the t.v. transmitters, has got his call sign, 3ZXM. He is a brother of George 3ZJQ and Ivan 3ZDI. So keep up the good work and activity fellows. 73, George 3ZCG.

WESTERN ZONE

The Zone has two new Amateurs awaiting call signs, Norman at Rupanyup and Lionel near Nhill; also several others sat for the April examination. Brian 3ZFS near Nhill is active on 2 mx with a dipole only at the moment as he crashed his beam attempting to get it higher. Bill 3ZAX and Jim 3ZMS both improving aerial systems—better signals from Nhill in the near future.

Bob 3ARM working some DX on the h.f. bands as well as keeping in touch with Rodney OCR on Macquarie, also on 2 mx and we hope 6 mx before long. Roy 3AOS apparently having a fair amount of success on 10 mx by the number of times I hear stations working him on that band. Herb 3NN still manages to work into Adelaide regularly on 2 mx.

Harry 3ZX, our Zone President, will have left the Wimmera by the time this is printed and we wish him well in Gippsland. Gavin 3AEJ at Rainbow reported to be going 2 mx f.m., good show Gavin, be pleased to hear you. Very little on the air activity from this QTH, new 75 ft. tower constructed and foundations poured. When new aerials are made expect better results than existing 7 elements at 28 feet on 2 mx. Even getting some QSL cards printed at last. 73, Roy 3ZYG.

MOORABBIN AND DISTRICT RADIO CLUB

A great deal of interest has been shown in the "work of art" which now adorns one wall of the club rooms. A symbolic painting, it illustrates the dilemma of the Ham who, through absorption in his hobby, may be inclined to overlook other attractions. Some XYLs who have viewed the work have applauded the artist's depth of perception, while observing that the object of competition for the Ham's attention could perhaps be wearing some clothes.

It has been suggested that a reproduction of the painting might make a suitable adornment for club members' QSL cards!

It was noticeable at the May meeting that the attention of some members was wandering from the business in hand as they discovered a new interest in art, nevertheless business proceeded smoothly, and the meeting was fol-

lowed by a Question and Answer session, when members were invited to ask questions on any aspect of their hobby.

Among the visitors to the meeting was David GIUFO, who is operating M/M from the "Clan Malcolm" around the coast at present and is looking for a.m., c.w. or s.s.b. contacts on 40, 20, 15 and 10.

Max Patman, who is soon to line up for National Service, was granted honorary membership for the term of his service.

A prototype of a 2 mx converter, which has been developed by the club for use with the club project transistor receiver, was passed around at the meeting and members were informed that the first project meeting for those interested in constructing the converter would be held on 2nd June. A special advice has been issued to all participants in the receiver project.

Noel 2NR, Peter XXK and David 3QV were among those who managed to contact Kevin 2ARD during Kevin's recent visit to W-land.

Phil 2APO reported that there are a number of 50 ft. wind-up towers going begging in certain country areas now serviced with local t.v. Prices are apparently quite low if you have the facilities to dismantle and cart them away.

Visitors are always welcome at the Moorabbin Club at meetings on the first and third Fridays of each month. How about dropping in some time? For directions on how to get there, see last month's "A.R." or phone 96-9414 or 93-6286. 73, Alan 2ASL.

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QUEENSLAND

IPSWICH AND DISTRICT RADIO CLUB

A recent article in "Amateur Radio" by the Bundaberg Amateur Radio Club has prompted me to let the Ham fraternity know a little about the Ipswich Radio Club.

This club has been in operation for almost five years now, and was originally started by a few keen S.w.l's who invited the local Hams of the city to join them. Since then, the club has expanded until, at the present time, it has 30 members.

In just five years, we have erected our own club house on a piece of land donated to us by the Ipswich City Council. This allotment is situated on top of one of the highest hills in Ipswich and has commanding views to south, west and east, and best of all—it is almost noise-free. A beautiful spot for Hamming, and last but not least, only half mile from city centre.

After levelling the scrub on the site, we erected our club house. The donation of an old office block from a disused coal mine helped us considerably with the building which measures 36 x 18 ft. and contains a well-appointed kitchen, complete with refrigerator built-in cupboards and stainless steel sink, and painted in gay colours; also the shack, our pride and joy, is 12 x 9 ft., but a little bare at the moment, as we only have our BC342 in it, but by the time you read this we hope to have our tri-band sideband transceiver, which Jack 4BF is constructing. The antenna system, at present, is a 20 mx dipole and an 80 mx inverted vee. We hope to improve this in the near future.

The remainder of the building has just been recently called and is used as our meeting hall and comes in very handy for the numerous social functions the club has. Our meetings are held every fortnight on Tuesdays, and all are welcome to attend, especially Interstate Hams who may be passing through Ipswich. A call to our Public Relations Officer, Bill John, at Phone 81-3629, will soon get you all the information re meeting nights, etc., and I can assure you a rag chew will be welcome.

Although the club is not strong numerically, we all pull together, which is a big thing in such a small club. We have 11 full licensees, 2 limited licensees and 6 s.w.l's, also not to forget our YL and XYL members who bring up the strength and who come in mighty handy on meeting nights making the supper and washing up. I only hope this plug for them does not go to their heads and we have a strike on our hands—only in fun girls.

Club nets are held every Monday at 8.0 p.m. on 3650 Kc. and the members would like as many outsiders as possible to give us a shout and join in whenever we are heard. Our other net on 51.032 Mc was once very popular, but now activity on this band is confined to almost every morning at 6 a.m. and after the VK4 Divisional news on Sunday morning. Our odd hours of operation are necessary because of the recent building and antenna installed on Mt. Cootha.

A certificate is available to any operator or s.w.l. who works the club station VK4IO and any two members and, on receipt of QSLs to all three stations, the certificate and special QSL will be forwarded. We have sent a number away to v.h.f. stations in VK4 and very few to any h.f. stations, and only one away to a DX station, namely W1DBM.

Without a doubt, much of the club's success has been accomplished by their social activities, which enables both members and their families to participate. This has allowed the members to get together and talk radio while allowing the XYLs the chance to talk over latest fashions or the latest DX country the OM worked recently. These social outings are barbecues, picnics or a night at the club house, and our duster hockey games are famous throughout the districts, usually XYLs versus OMs, and this is a fine opportunity for XYLs to break even on the OMs under the name of sport. Also numerous Sunday round trips are had, all cars working mobile on 6 mx all the way.

Office-bearers in the club are Norm 4KO, President, Reg. 4RG, Vice-President, Alex 4QT, Secretary, Joan XYL of 4ZLG, Treasurer; Wayne 4ZN, Station Manager; Bill WIA-L4091, Public Relations Officer. Other licensed members are Jack 4BF, Dave 4HW, Col 4ZMA, George 4ZLG, Stan 4SA, Bill 4UB, Phil 4ZPE, Bob 4JR and Warren 4GT, and numerous other S.w.l's and XYLs.

Bill our Public Relations Officer, recently retired from work. I don't know if his recent appointment of outward QSL Manager had anything to do with it, but Bill reckons the VK4s are getting their share of DX by the number of cards he ships out. Dave 4HW may soon have to move from his antenna farm at Lake Manchester, the next QTH may not be as good Dave, so get all those countries for D.X.C.C. before you leave. Wayne 4ZN, our Station Manager, may have to delay his new s.s.b. transceiver project since he has taken up b.c. operators' course at college. 73, 4GT

TOWNSVILLE AND DISTRICT

As promised in my last notes, the trip to Cairns did eventuate. Basil 4ZW was called upon and he reported that there was hardly any activity in the district except on 52 Mc, and that the Z boys were having a whale of a time working the JAs with some openings towards the south of their district. A very distinguished visitor to the north was ZBD. While in Townsville he was the guest of Teddy 4EJ and sojourned to Magnetic Island for the week-end. He also found time to visit some of the other boys and took the advantage of calling for the evening on the writer and tried my brew of tea.

Merv 4DV back again at work after the annual camp of C.M.F. Put most of the time in at Bellheim.

It appears that one of the local High Schools is starting the Radio Scheme, while Norm 3NT informs me his lad at the local Grammar School has the principal also interested in the same set-up. Norm is donating a receiver for this purpose to the School.

The local club has two sessions going on Saturday morning, 8.30 to 9.30 (new class) and the second for the advanced classes, 9.30 to 10.30 a.m. The instructors are to be commended for their enthusiasm. It is reported the president of the club, Peter 4ZKE, is resigning from the R.A.A.F. and going back to VK3 land to take up Church work. He will be missed as he was very keen on the club activities. 73, Bob 4RW

BUNDABERG AMATEUR RADIO CLUB

Another month gone and not terribly much activity, radio-wise. Most of the time and energy of the club members was spent organising the State W.I.A. Convention at Alexandra Headlands and a static display in the Bundaberg Civic Centre for Youth Week. The Youth Week display proved very popular with the young people of the city, and as a result, we hope to recruit some new members.

Glad to hear Frank 4UK back on the air after a long absence. With the wet year we have had, Frank could not use the old excuse of irrigating his fruit trees any longer. Heard last week that John 4ZJT is moving to Pialba, much to the disgust of Les 4XS, at Kingaroy. Les tells me he just gets a fellow Amateur in the town and he is transferred. We should be able to work John easily on 6 mx. But, be prepared, you 6 metre fiends, John is coming up on s.s.b.

Les 4FX is temporarily off the air with another burnt up transformer. That is two in two months, Les, better take a long deep look this time.

Six metres is open spasmodically to VK3 as late as last week. Crazy sort of turn-up with the Southern stations breaking up our cosy little 6 mx nets at this time of the year.

Congratulations to Dave McGrory on the allocation of his call sign, VK4DJ. Dave should be heard on 80 mx c.w. very shortly. He has made a very nice job of re-vamping his h.f. disposals receiver.

We had quite a club old boys' reunion the other night with Les 4XJ at Brisbane, John 4XC at Nobby, and Bill 4XZ at Charters Towers. Just as well they have moved anyway—too much QRM if they were still here. 73 for now, Rusty.

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held in the clubrooms to a good attendance of members and visitors, and when one considers that the night was almost a record for the cold this year, it was quite gratifying and also went to prove that the record low attendance of the April meeting was just one of those things due to the change of night, and is best forgotten.

The President, Murray 5ZQ, opened the meeting on time and disposed of the business [illegible] of the meeting in almost record time, had a short smoke-oh, George 5RX distributed the QSL cards, and the lights were lowered for the purpose of screening the slides provided by VK2 which accompanied the tapes, also from VK2.

The first tape recording was on communication receivers generally, followed by the second tape on transistors, and VK2 are to be congratulated on the excellence of both tapes, and the great amount of technical information given, to say nothing of the circuits on the slides. Ron 5KS acted as slide putter-inner and taker-outer, and except for having us all stand on our heads once, he did his usual excellent job.

Among the welcome visitors were Mac from Christmas Island, one of the members of the club on the island which boasts the call sign VK9XI, who is spending his holidays in VK5 and fluked the meeting night. The other visitor was Wally, ex ZL3TCW, now a VK5 resident and soon to take out a VK5 call sign, who, incidentally, looks like a find for the v.h.f. section, as he is as keen as mustard on the v.h.f's, and willing to be in everything that is going.

Another unexpected visitor, although he has been a member and licensed for a lot longer than I care to remember, was Allan 5ZX looking as young and active as ever, and accompanied by his harmonic number three, who is apparently responsible for his comeback to Amateur Radio after all these years. He told me that young Chris was responsible for nudging him into putting the 6 mx mobile in the car and frankly admitted that he had not enjoyed himself so much for years and years. Just goes to show—nice to see you back OM—and you too Christopher.

Rob 5WA slunk away into a corner of the clubroom as soon as I came in, and when I cornered him eventually, he explained that he was not too sure that I would speak to him any more because he was now using "The Thing". Controlling my emotion and standing up to the situation in my well known soldierly manner, I explained to him that I was receiving so many slabs in the back these days that I had come to accept such acts of fate. He now has s.s.b., to say nothing of a slasho beam, is more than satisfied with results, but also informed me that all the pigeons in North Adelaide now come and perch on the said beam.

Our genial Treasurer, only genial when the money is flowing in, reports that he contacted Tubby ENO on 28 Mc. recently and Tubby's signal was S9 all through. Tubby is at the Eldo Tracking Station—QTH given as Gove.

Although there has been no sound from Fred 5MA since coming to the city from Renmark, my spies tell me that he often listens to all that is going on and no doubt will be bitten by the bug ere long.

Another ex River Murray call sign not heard in years is that of Hurtle 5RE, who lives at the foothills suburb of Linden Park. He is still particularly interested in photography and this has now become his main hobby to the detriment of Amateur Radio. Shame on you Hurtle!

Talking of hobbies, a particular dark horse is Arthur 5HY who is almost as well known in astronomy circles as he is in Amateur Radio. Understand that he is a lecturer of no mean ability on home constructed telescopes and the like, and for many years was much in demand for his advice on grinding the lenses and the like. Just how he could manage to lecture to an audience on astronomy and not slip in a few plugs for s.s.b. is beyond me!!

Apparently Murray 5ZQ has one critical listener to his W.I.A. broadcasts because I understand that his XYL took him to task for leaving out certain W.I.A. activities of the week from the broadcast. Murray's reason was that he only had so much time in which to get everything in, and occasionally something had to go by the board. Apparently this satisfied the XYL, and going on my experience over a very long period, if one can succeed in this mighty task, then one is certainly above reproach!

Incidentally, the W.I.A. broadcasts produce all sorts of requests. Did you notice that Edwin 5ZTS seeks the use of an old fashioned spinning wheel for a couple of weeks? My chief spy has been assigned to the task.

Up in them thar Eden Hills, a couple of true blue Hill Billies have bobbed up just recently, due to the fact that Charlie 5ON has acquired an electric organ and Keith 5KH has also got into the act as a musician on the same musical instrument. At odd and various times the sound of sweet music can be heard drifting through the crags and crannies, and if all is to be believed, a new t.v. act is in the making. One thing can be certain, if Charlie has anything to do with it, things will be well "organised"—oh, I am a one!

Anybody ordering text books, etc., from the Division should periodically contact Tom 5TL as to availability of the order. Just recently an overseas publication was ordered and when received was taken to the meeting three times, but the member was not present. A note was then sent asking him to contact the Publications Officer, which resulted in an appointment being made to call and collect from Tom's QTH, and so far the appointment has not been kept, and the book is still on the shelf. Fortunately, this is an exception, according to Tom.

Was interested to hear that the VK7 Convention was held in the Braille Library, and of course it was found that lighting was necessary because the normal users of the library don't need any light, and don't need any bills either. Until it was mentioned, I never gave it a thought, and only goes to show just how much we take for granted our ability to see and hear, etc.

Noticed a good turn-up of the boys at the funeral of Joe 5JO. Among those noted were Geoff 5TY, Jack 5JS, Dave 5BF, Roy 5AC, Arthur 5HY, Ses 5GP, Arch 5XK, Alan 5OH, Charlie 5ON, Reg 5RR, Joe 5ZJW and Laurie 5XN. This was a real good representation, and good old Joe would have been honoured, especially when one remembers just how much he thought of his Amateur Radio mates.

Talking to Laurie 5XN after the funeral, he told me that he was about to make a comeback to the game in the near future, but entirely spoilt the effect of the announcement by adding that he would be on s.s.b.

Was also happy to renew my friendship with Roy 5AC at the funeral, especially as made no reference to s.s.b., and told me that he was active nowadays on 6 mx. Good work, Roy, although I am not altogether happy because I noticed Arthur 5HY with a hammerlock on him as I left, and definitely was bending his ear and if he was not giving Roy the one, two, three on "The Thing", then I am a product detector's uncle. I fear the worst!

Eric 5ZEJ has expressed an interest in old radio gear, although he is not referring to the original "King Alfred's fleet models". Contact him if you have anything that you think might interest him. He will be more than grateful. I was thinking of offering him my spare coherer, but on second thoughts I decided not to be too rash, although it sounds impossible at the moment, I never know—the day might come when I am forced to tackle "The Thing"!!

Noticed that Gilbert 5GX, our genial and very co-operative disposals chairman, could not resist a plug for "The Thing" in his disposal notes in the VK5 Journal. I quote: "A recent customer in Mr. Jack Dew, kJX, collected 18 of the 2N3565 as he intends to construct that very nice s.s.b. transmitter featured in Electronics Australia. We wish him every success with it." How cheeky can one get? Who wishes who success with s.s.b? Jack, you cause me great pain! And as for you Gilbert, you are straining our friendship almost to breaking point—a very nice s.s.b. transmitter—there is no such animal!!

Also have a bone to pick with the Editor the VK5 Journal, Brian 5CA. There was I, perusing the said journal with avid interest, when out of the blue came—**The Next Journal Will Be Your Last**—see page 12. Rushing over to page 12, and trying to keep my palpitating heart from bursting with even the thought of no journal, I bump into—**The Next Journal Will Be Your Last**—if you are unfinancial. Fancy springing such a gimmick on me at my tender age. I am sure that my heart missed a couple of beats.

Some time ago, the beam of John 5MX was observed in an unusual position. This was evidentally with due reason, as it has since disappeared and a quad now decorates the landscape down Woodville way. Working the lot, Johnnie?

Here we go again. Lance 5XL is reported as making enquiries as to the do's and don'ts of transistor power supplies, so apparently there is something doing up at Clare, and to make matters worse, Tim 5TJ is hoping to put some s.s.b. on the air ere long, or so the story goes.

A little on the more cheerful side. Les 5NJ was heard saying that he has completed the 160 watt mobile—AND NOT SSB—preferring AM for such things—although I must play fair by adding that he is the owner of a transceiver which is used for DX exclusively. Trust you to ask—of course it is s.s.b.!

It is not often that I am able to catch Comps 5EP out, but recently in a letter to me concerning his willingness to write these notes during my annual vacation, he commented, among other things, that he supposed that the Mt. Gambier notes would come to him for the month instead of coming to me. Tut-tut—and a couple of dipthongs. This statement clearly proved that he never reads my notes, because the Mt. Gambier notes have been conspicuous by their absence since the scribe, Col 5CJ, took over the running of 5SE, and consequently found himself too busy to oblige—and, if I might say so, he obliged for many years, to good effect. Anyway, committed out of his own mouth, or should I say, out of his own typewriter, Comps must be punished by being banished to his Tower of Babel—or should it be—Tower of Babble. Get it, Tower of Babble—s.s.b.—"The Thing". Get it? Okay, okay, I thought it was funny!!

Bob 5RI, from Mt. Bryan, is evidently an accomplished exponent of the Royal and Ancient game of golf, judging by his reported round of 66 and a hole in one. Most golf scores from the average amateur usually look like "The Dons" cricket scores when at his prime, and it is not long before they give the game away. The basket was too high up on top of the post for me, that's why I gave it away early!!

The other day I heard a certain station giving call signs in the appropriate places—"just in case the R.I. is listening". This was without doubt gilding the lily, as the owner of the voice is so well known by that said voice that he could dispense with call signs and still not be unknown. To remain friends with my favourite Scotchman, I will refrain from mentioning names or places, and anyway, he is a bit on the big side to trifle with.

Brian 5BI, of Franklin Harbour fame (Cowell to you), has been doing a bit of public relations work for our grand old hobby. He recently went to Cleve by invitation and spoke to a meeting about Amateur Radio, and present indications says that at least one or two are more than a little interested in the possibilities. Nice work OM.

Just to make an earlier paragraph on Fred 5MA inaccurate, he was heard on 3.5 Mc. the other night, and it appears that he has been doing quite a bit of listening on 6 mx for some time. It is possible that his sudden return to the air is due in no small manner to the modicum of "arm twisting" on the part of about three fellow Amateurs who work in the same place as Fred.

Working Europeans on 14 Mc., Pete 5FM had some QRM troubles, but by means known only to himself, he was able to convince certain offenders of the futility of their antics. You can't beat an old dog for a hard road.

Tom 5TL—Uncle Tom to you—is the programme organiser for the Black Forest Methodist Church Men's Fellowship, and I notice that three of the local boys have assisted him by giving talks at the meetings. Hurtle 5RE on fruit growing, illustrated by 16 mm. film, Geoff 5TY on W.I.C.E.N., with a practical and unrehearsed demonstration from the hall, together with a display of gear, past and present, and John 5KX on the new station at Torrens Island, with drawings and views of the power station under construction. The talks by all three were very well received and Tom has now suggested as an anticlimax, that a well known, modest and unassuming Amateur, well equipped muscularly, and quite tame, should give a talk on commercial radio. Tomatoes and eggs can be obtained at the door of the meeting and throwing practice can be had by anybody interested. Anyway, why should I not live dangerously? With my slim build, I would not offer much of a target, well not too much!!

A scheme has been submitted to Council to teach the code by the "Language Laboratory" somewhere in North Adelaide, with 10 or more candidates required before a class can be started. Geoff 5TY will be going out to see just what makes it tick shortly, and take it from me, if he gives it his okay, then it certainly will be okay. As he said at the meeting, "It is worth looking into, everything else has been tried to knock the code into some people, so why not this, and after all, the results are what counts, not the method." We await his findings with bated breath—or something!

I understand that as the Co-ordinator of W.I.C.E.N., Geoff 5TY recently received an enquiry from a member in the country concerning W.I.C.E.N. The usual forms were posted off and returned pronto, together with a three-page letter. In the course of reading same, Geoff was amazed to note that the party concerned had a disability—he had no hands! I cannot remember the call sign, but take it from me, I will certainly find out, but he has a 10 watt limit, and despite his disability, is willing to be helpful in the W.I.C.E.N. set-up. This is not written with any intention of publicity, it hardly needs it, but just to show that each and every one of us at times tend to think we are kicking against the wind, when really we don't realise just how well off we really are.

Best news of the month was that Ray 3RJ has decided to carry on with his job as Federal QSL Manager. They don't come any better than Ray, even if he is a VK3—and what better compliment could I pay than that?

Have just learned that Tom 5TL only allows 45 minutes for his speakers to strut their stuff—the reason being that everybody eats before the talk. Something along the lines of "The condemned man ate a hearty meal"! I wonder what it will be like to stop an over-ripe tomato or a vintage type egg. Keep tuned to the enthralling and tense VK5 notes each month (VK4 and VK6 please note) and possibly the writer will be in a position to give you a running description—get it?—a running description. Okay, okay, 73 de 5PS, PanSy to you.

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WESTERN AUSTRALIA

Hello again! Well here we are again, past the half-way mark and heading down the back straight towards Christmas. Doesn't time fly? Winter conditions seem to be promoting a fair level of activity on all bands, hope it keeps up.

It's very nice to be able to welcome another YL to the Division, but don't expect to hear her charming voice too often, instead start brushing up on the Morse. This lady is a c.w. expert who makes the most of her 60 or so watts to get amongst the DX on 20 metres, so look for the call sign VK6OV.

Talking of c.w. reminds me of Allan 6MA. Heard him come in on the Sunday morning call-back with a burst of c.w. It appears that his modulator took the knock and it was a case of brass-pounding or else. Now he has turned his attention to keyers, both vacuum tube and transistorised versions. Just goes to show don't it?

Russ 5LY has been laid low with sickness just recently—this is no good OM, I'll have to consign you a case of apples. An apple a day, etc.

It was quite a nice change to see some Interstate visitors at a recent meeting, among those present on this dark and wintry night were VK2NS, VK2NB and a visitor from overseas, ZS3HT. Welcome to the West.

During this same meeting quite a lengthy discussion took place as to which type of transceiver should be purchased for use by the official station. By the time this screed hits you, VK6WI should be operative on the band with a Swan.

Smoke signals received here from far off Kalgoorlie suggest that Doug 6EP has bought himself a duck whistle and is patiently practicing in the hope of luring a Swan to his QTH also!

What is it that has attracted Graham 6GR to the South Western portion of our State? I understand that he is now a resident of Sleepy Hollow—sorry—Busselton.

Congratulations are the order of the day for David Priestley, who recently converted to his full call sign, VK6ID. He is now scratching his noodle, wondering just what gear to use on the "DC" bands.

Has anyone else noticed those couple of new intruders on 80 metres these nights, or is it just my receiver playing tricks?

Don't ever try to tell Bernie 6KJ that swans just naturally take to water. A report to hand indicates that during his recent trip north a certain amount of wet weather was encountered and the gear became somewhat sodden through the agency of an open scuttle or something. Fun and games for all concerned trying to dry out the transceiver in order to get back on the breeze. There's no doubt Bernie, our pioneers had it easy didn't they—only had to keep their powder dry!

Heard a whisper that Clem was carefully scanning all available literature on commercial sideband equipment. VK6CW going commercial?

There's no doubt about it—school holidays seem to bring out the best in people. I mean to say, how often do you hear Dave 6WT on the mike? Usually we admire his "fist" down on the c.w. end of the bands, but up he popped on Basil's rig the other morning.

Then there's John 6NJ, down in the big smoke, taking refuge after the rigours of Binnu. Must have found some new gear, too, because I heard him on 40 metres—c.w. too! May not have a receiver though—because he did not respond to my tremulous call.

It is most unfortunate that space cannot be found in the great halls of the Perth Airport for the Institute plaque intended to welcome and inform new arrivals. Never mind, perhaps the Overseas Terminal at Fremantle might offer some measure of compensation.

Ray 6WU has been busy constructing a cubical quad for operation on 10 metres and it seems to be working out quite nicely. A very popular antenna the comical quids! Quads don't hold any attraction for Bill 6WY, who has been getting extremely good results with his X-beam, however he is now turning his structural talent toward a three element tri-bander. Hope it works out Bill.

Some of the more lucky members of the Division were recently able to avail themselves of the opportunity to inspect the satellite tracking vessels which visited Fremantle. There were several Hams among the technical beds on board. Vern W0EZO, Frank K4CCI and Keith K1BTD. Most of the visitors were very impressed by the equipment on the vessel and many an envious eye was cast on some of Uncle Sam's prize gear. They just don't make pockets big enough these days.

Obviously inspired by the success of the Narrogin Hamfest, a very active group of Kalgoorlians (what sort of a word is that?) has arranged for a similar shindig during the Foundation Day long week-end. From the thought and preparation which has gone into this Hamfest and the very gratifying response from city and country members alike, this event should easily rival the mid-year racing carnival at the "Twin Cities". Having eavesdropped on 80 metres during the preparations, I have been in time to warn the appropriate authorities and am assured that all the necessary precautions have been put into operation. Wouldn't be surprised if some of those blokes forsake Ham Radio to go prospecting or two-upping or something after their visit to the "Golden Mile".

The recent v.h.f. scramble proved to be quite a popular event, with a sizeable number of stations taking part in both sessions. Rumour has it that a couple of dyed-in-the-wool 80 metre exponents were on the breese. Ho hum!

Well that just about winds it up for now. 73 and good DX, Ross 6DA.

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TASMANIA

As I mentioned last month, the lecture given at the Divisional meeting was to be by Len 7LE on a transistorised receiver. It proved to be a most interesting lecture and was well appreciated by all those present. Let us hope that by his excellent effort Len has set a ball in motion and a few others will roll along with their latest "gadgets" and give a talk on them.

This month the Divisional Council will make their annual sojourn to the Zone meetings. When this event was initiated last year it was greatly appreciated by the Zones and this forthcoming visit will certainly follow suit.

The mention of Council brings to mind a few bits of gossip about some Council members. First, the long awaited day has arrived when Tom 7AL has erected a respectable antenna and is now putting out a signal which can be heard by all. My spies inform me that Ian 7ZZ is thinking of firing up an s.s.b. rig. Whether inspired by Len's lecture or not, I don't know, but Ted 7EB is starting to fiddle with a transistorised receiver which, after several false starts, is now progressing well.

Our newcomer from KL7, Nancy VK7ZA, is now heard quite often on h.f. and on 2 mx. While in the Launceston area, my spies tell me Dave 7ZAY is once again working there.

That appears to be all for this month except for a final urgent plea—please make sure you are not among those with unpaid subs. 73 7ZLP.

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PAPUA AND NEW GUINEA

Hello there, I guess it will come as a surprise to see these notes from the Territories appear on these pages. I hope you enjoy reading them as much as we enjoy reading yours, especially PanSy 5PS' (even if he is a little one-eyed about "The Thing". In fact I'll even bet he didn't know anybody did read them.)

At present, the most active stations up here are: VKs 9DJ, 9GN and 9KS with 9AN, 9AG, 9BJ, 9GC, 9GW, 9GZ, 9JA, 9JD, 9JK, 9KS, 9MK, 9OM, 9TB and 9XI fairly active. There are a few others who are occasionally active and, unfortunately, some completely inactive.

The Territories have two Radio Clubs at present, Christmas Island Radio Club and Rabaul Amateur Radio Club, but unfortunately we do not have a Youth Radio Scheme. One of the factors which makes it difficult to get properly organised is the amount of short term Amateurs up here. On an average, a person coming into the Territory stays on for three to five years and many do not feel like getting tied up with organisations.

C.w. and s.s.b. stations seem to be equally popular and to the best of my knowledge there is no a.m. station active, at least I haven't had any cards come into the Bureau for any.

Due to recent representations by Sandy 9GC and myself, the Customs Dept. of the Territory of Papua-New Guinea has agreed to waive import duties on communications type receiving apparatus providing it is imported for the use of a licensed Amateur and is not put up for re-sale. The licensee must sign a Declaration to this effect. Let's hope that the Australian authorities will follow suit.

It is rather difficult to obtain spares here, nobody caters for the casual radio parts buyer. This means that the Amateur must obtain his parts from outside the Territory and is then slugged with the sales tax in the country of purchase, shipping charges and, if the purchase exceeds $4, customs duties. We like to treat our gear with kid gloves, this keeps the db. in the pocket.

There will shortly be another three FL200Bs and one FT100 on the air from Papua-New Guinea and a few more db. in a certain Japanese bank account, so keep your ears on the three middle bands and perhaps we'll have a bit of yackitty with you. 73, Ted 9TB.

HAMADS

Minimum 50c for thirty words. Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.w.l's. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, Vic., 3002, by 5th of the month and remittance must accompany the advertisement.

FOR SALE: AR7 Receiver, unmodified, complete with all coil boxes and a.c.-d.c. power supply, good appearance, $65. VK3ZYG, S. R. Goodwin, P.O. Box 81, Kaniva, Vic.

FOR SALE: Cossar Sweep and Marker Generator, Model 1323A, up to 230 Mc. with cal. and sound i.f. (5.5 Mc.) xtal, in excellent condition. Accept any reasonable offer or will swap for good general coverage receiver. VK5ZKA, Lot 184, James St., Reynella, S.A.

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FOR SALE: Modulator, Class B zero bias 807s with A. & R. Transformers, $30. Power Supply, 500v. to 1,000v. at 300 mA., 866s, A. & R. Transformers and Chokes, $25. New 807s, 75c ea. 100 mA. Weston Meter, 3 in. diam., $1.75. Geloso 4/102 V.f.o. with Valves, $15. VK3PR, W. R. Jardine, P.O. Box 145, Leongatha, Vic.

FOR SALE: S.W. Receiver and Amplifier, 2.5-21 Mc., b.f.o., etc., speaker as well, phone jack and amplifier, $20. Ph. 232-8433 (Melb.). A. J. Cox, 1 Inverell Ave., Syndal, Vic.

FOR SALE: Tunable 36 to 60 Mc., 240 channel, 15w. F.M. Transmitter and Receiver, Type C42, Complete with 2 Mc. and 100 Kc. Calibrator Xtals. Total 32 valves. Connecting cables and a.c. power supply to suit unit, complete with speaker, mike (V.R.) and limiter meter, in louvred case. Price $60 or offer. Pye Reporter Mk. III, with vib. p.s. complete (12v.) and 53.032 Mc. xtals; Price $25 or offer SCR522 Transmitter-Receiver unmodified, in original case, good condition, complete with valves; Price $20. Command Receiver, 3-6 Mc., BC454, modified for speaker output per "A.R.", complete with 12-14v. motor generator on rear platform (original type). This unit has won many tx hunts. Price $20. VK3EM, 267 Jasper Rd., McKinnon, Vic. Phone 58-7745.

HEATH SB300 Linear, excellent efficiency, showroom order, as new. Write or phone R. Roy, 41 Hardware St., Melbourne, Vic. Bus. 67-3697, A.H. 24-2043.

KINGSLEY AR7 Receiver, all coils, power supply, manual, $50; Command Transmitters, cases dented, $8; dozens of assorted meters, $1 each; full size 3-element Yagi Beam, 20 ft. 2 in. boom, $30; set of elements for 3-element tri-band Gonset type beam, $50; spiderhead for tri-band Quad construction, $6; Navy surplus type Hammarlund HQ-120X Receiver, 0.5-31 Mc., electrically perfect, $75. Alex Guttrim, VK2EX, 30 Boomerang Road, Springwood, N.S.W.

SALE: 50w. F.m. Base Station, $50. Two low band F.m. Mobiles, 15w., $20 each. High band F.m. Mobile, 30w, $50. 35w. Amp., make beaut modulator, 2 speaker columns, $40. A.R.R.L. 52 Mc. 6CW4 Converter, 14 Mc. i.f., $15. R.T.H. 144 Mc. Converter, $6. SCR522 Receiver, $5. SCR522, on 2 mx, less power supply, $15. R.T.H. 8 valve Communications Receiver, needs new tuning capacitor, $70. UM2 with two KT88s, new, $30. Power Transformer, 650v. at 250 mA., $20; 400v. at 150 mA., 6.3v. etc., new, $10; others from $4. 85 yds. 7/048 hard drawn copper wire, $10. Vulcan mini Stove, almost new, $25. Valves: 807, QQV06/40, QQV03/20, 5763, 6CW4, 6AK5, 12A77, and others. Speakers, Eddystone condenser, relays, transistors, too much to list. Why not visit shack. Phone Melbourne 68-3265. Some deceased Estate.

SELL: Back issues: (a) "Electronics Australia"; (i) Oct. '56, 20c; (ii) Aug. '57 to Nov. '57, 20c ea.; (iii) Feb. '58, 20c; (iv) Aug. '58 to June '67 (complete, no copies missing), $10. (b) "Amateur Radio"; Sept. '60 to June '67 (complete, no copies missing), $8.20. All magazines in brand new condition. Will not split items (a) (iv) or (b). P. G. M. Bruer, VK5ZGX, 95 Church Tce., Walkerville, S.A. Phone 65-1383.

SELL: Receiver Lafayette HA225, 14 tubes, product detector, 0.15-0.4, 1.8-30, 46-54 Mc., bandspread, 240v., handbook, new, $210. Veico Tape Recorder-Radio, full-track, 3¾, 7½ i.p.s., p.p. 6AQ8s, leatherette case, good order, $60. VK3IB, P.O. Box 35, Dimboola, Vic.

SELL: R1155 Receiver, with matching a.c. p.s. speaker combination. All in brand new condition. $80. VK3OM, Phone 560-9215 (Melb.).

SELL: 120w. 80-10 a.m.-c.w. Transmitter, commercial appearance, grey table top steel cabinet, will accept $80 or best offer. (Parts worth more). Also 10/15 converter, very sensitive, $8. Several unused 807s and 6146s, all cheap. VK3OM, Phone 560-9215 (Melb.).

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WANTED TO BUY: A copy or photostat of Wireless World, Jan. 1965. Dinsdale Amplifier article. J. H. Cater, 30 Junction Rd., Blackburn, Vic. Ph. 878-1474.

WANTED TO BUY: AR7 Communications Receiver. Send particulars to Robert H. Chester, 30 Carey Avenue, Seaton, South Australia, 5023.

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1500 c.p.s., vacuum mounted, octal based. 0.001% accuracy. At a give-away price of $10.00 ea. (Limited quantity).

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115-145 Mc. Employs heterodyne exciter in transmitter. TT15 p.a. Single xtal locks Tx and Rx on same frequency. In-built modulator. Supplied with 4.86 Mc. xtal. $30, circuit $1.

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100-150 Mc. Complete with tubes, $28.

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EF50, 20c ea.; 7C7, 10c ea.; CV131, 6CQ8, 50c ea.; 6AC7, 20c ea.; 6AL5, 20c ea.; 6C4, 6AM5, 50c ea.; 6J6, 50c ea.; 6FQ5, 50c ea.; 12AD6, 60c ea.; 12AU6, 60c ea.; 12BA6, 50c ea.

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Comprising 1 transistor 100 Kc. osc., 1 transistor emitter follower. Fibre glass printed circuit board. Provides accurate harmonics to 144 Mc. Trimmer on oscillator for zero beat with WWV. Xtal accuracy 0.005%. Power requirements, 15v. d.c. at 14 mA. Size 2½" x 1¾". $22.00 inc. tax.

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100,000 ohms per volt. Ranges, d.c. volts: 0.5, 2.5, 10, 50, 250, 500, 1K; a.c. volts: 2.5, 10, 50, 250, 1K; d.c. current: 10 uA., 1 mA., 25 mA., 250 mA. 10 amp.; resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, $25.95.

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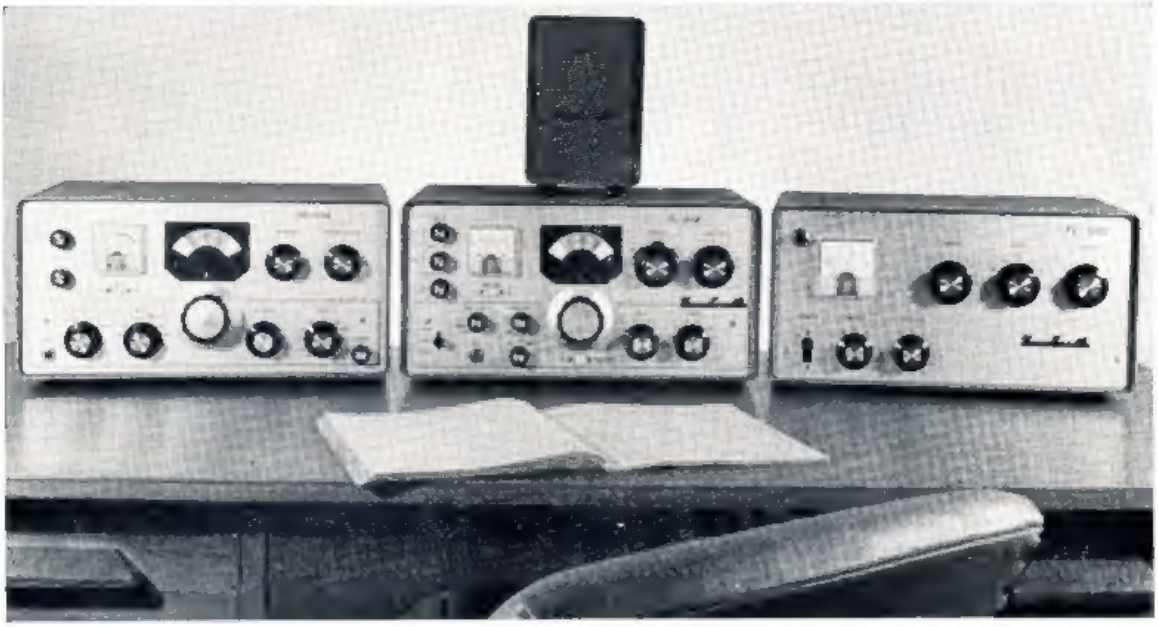

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